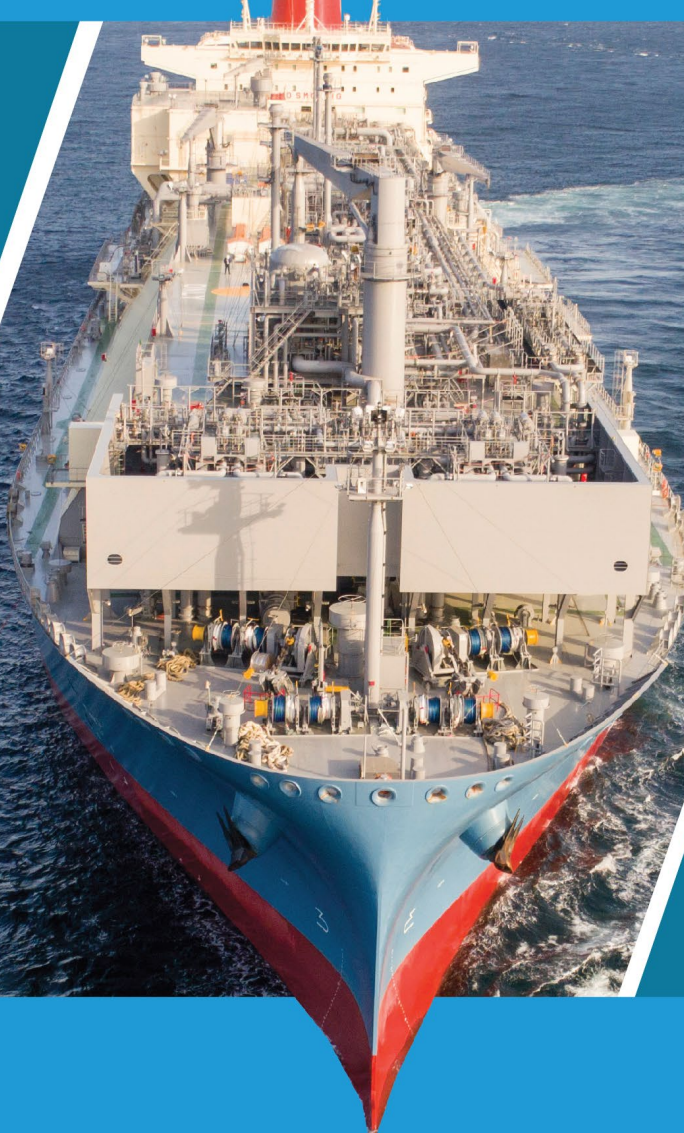




IRCLASS
Indian Register of Shipping

Issue 4 - March 2023

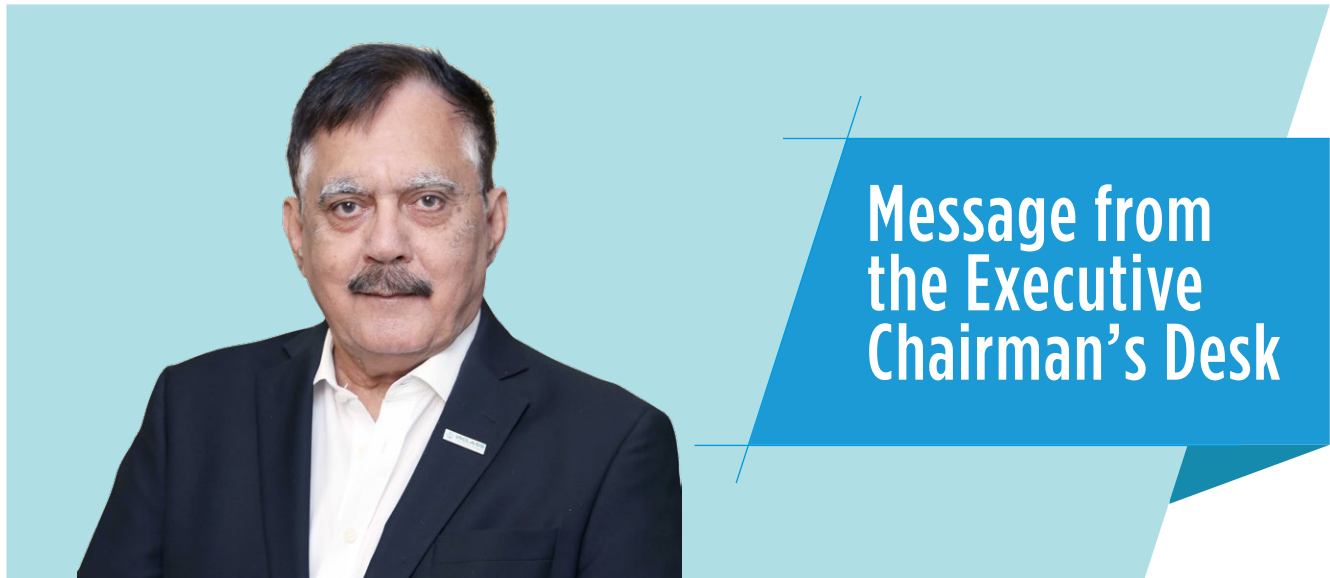
TOUCH OF CLASS





C O N T E N T S

Message from the Executive Chairman's Desk	2
Managing Director's Message	3
From the Editorial Board	4
The role of Digitalisation in complying with CII	5
Reaching the 20 Million GT Milestone	8
Cyber Risk Management - The 'Defence in depth' approach	10
Assessment of High-Speed Crafts with Numerical Techniques	12
ISSPL – Program Consultancy Services	14
ISSPL – Testing Services	16
Key Press Releases	18
Vessels – Classed, Launched & Delivered	19
Events, Webinars & Conferences	20
Employee Corner	23
Academy	24
Training	26



Greetings

I am pleased to witness IRS' sustained growth, both geographically and fleet-wise, in today's complex environment. It is encouraging to note that this growth is not at the expense of quality in our services. The substantial growth in our global customer base amid rapidly evolving developments in sustainable shipping and green technologies has given impetus to plot future courses. In this direction, IRS is committed to support the maritime industry to achieve IMO's decarbonisation goals.

It's heartening to note that the teams are working very hard towards establishing rules and guidelines and calibrating them, with the evolving technologies. Towards this objective, IRS is collaborating with various leading players in the industry on digitalisation, green and alternate energies.

A consistent delivery of service has been the centre of IRS philosophy and to ensure this, IRS is continuously working on upskilling our Surveyors towards new technologies and other developments. This is being achieved by imparting knowledge through training, mentoring and facilitating peer interactions, both formally and informally.

With various initiatives being undertaken, I am sure IRS will be ready to face future challenges and continue its strong growth.

Wish you all a pleasant reading.....!!!!



Dear Reader

Welcome to the latest edition of Touch of Class, the first for the year 2023. Last year has been another significant and positive year for Indian Register of Shipping (IRS) as it goes from strength to strength. We are glad to inform that we have recently reached a milestone of classification of 20 million GT and with many of the ships classed requiring surveys at Turkiye, the existing site office of Istanbul has been transformed into an independent Survey Station under UAE region.

IRS has embarked on a digitalisation journey adopting the global best practices. There is focus on Digital Twin concept, data analytics, knowledge management as well as life cycle management of assets. Through this initiative, IRS aims to enhance its capabilities, accelerate research and development, and monitor crucial Key Performance Indicators (KPIs) of its customers' assets.

Several initiatives are being undertaken in the field of decarbonisation and development of alternative fuels ecosystem. With the ever-evolving technologies, alternative fuels and corresponding machinery being installed onboard, limited experience on their use has an impact on crew/vessel safety. Development in technologies also leads to safety related challenges for Surveyors and we are increasing our efforts on training with respect to safety during surveys.

It has always been an endeavour of IRS to promote fleet quality while maintaining a customer friendly approach. Vessels are monitored regularly and those requiring additional attention are identified under our Fleet Monitoring Program. Through this program, IRS Surveyors undertake detailed vessel specific examination to ensure continued compliance to the requirements. Further based on the condition of onboard maintenance, frequency of these examinations may be increased. With an aim for continual improvement, there has been an increased focus on internal and external training and upskilling of our employees on the latest advancements on the regulatory and technological fronts. During these sessions, Surveyors are also familiarised and trained to verify compliance to upcoming Concentrated Inspection Campaigns (CIC) by PSC MOUs, which help owners and managers to keep the vessels ready for any external examinations.

I am sure you will find value in this edition of Touch of Class and wish you a happy reading!

From the Editorial Board

Dear Reader,

It gives us great pleasure to present to you this year's first edition of Touch of Class. Like always, we have endeavoured to include a diverse range of technical and topical articles.

With the developments in digital technologies touching all aspects of our lives, shipping cannot be left behind. With new regulations on CII kicking in, digitalisation will have a key role in effective monitoring and reporting to make CII a success.

Rise in digitalisation also increases threats due to cyber attacks. In this edition, we take forward our series of articles on Cyber Risk Management – The “Defence in depth” approach. While in the earlier editions we discussed digitalisation, remote connectivity and the rise in cyber vulnerabilities; in this edition we dive deeper as we touch upon the types of cyber-attacks and the various ways in which a system can be compromised. Noting that IRS has recently reached another milestone of 20 million GT in its class, a brief walk down the memory lane is presented, reflecting the journey and the dedication put in by all IRSians.

Further, to stimulate the more technical minds, we have an article on numerical techniques for assessing the safety and comfortability of high-speed crafts.

An overview is provided of the various testing services and program management consultancy services offered by IRCLASS Systems & Solutions Pvt. Ltd. (ISSPL) which indicates the growing width of IRS services. Readers will get an insight into these topics as well as some of the key events and developments at IRS. We hope that you will find this edition exciting and would be glad to receive your feedback on toc@irclass.org.

Pleasant Reading!
- Editorial team



The role of Digitalisation in complying with CII

ENERGY EFFICIENCY



Mr. Kunal Sharma, Senior Surveyor-Ships & Technical Services



Digitalisation is shaping the shipping industry's future in every aspect, from novel advanced ship designs, new construction to improving operational efficiency, supply chain management, remote surveys and trainings.

The Carbon Intensity Indicator (CII) is an operational measure adopted through amendments to MARPOL Annex VI which entered into force from 1st November 2022 through resolution MEPC 328(76). It is applicable to ships of 5000 GT & above of the following ship types:

- Bulk Carrier
- Tanker
- Combination Carrier
- Containership
- Cruise Passenger Ship
- Gas Carrier
- General Cargo Ship
- LNG Carrier
- Refrigerated Cargo carrier
- Ro-Ro Cargo Ship
- Ro-Ro Cargo Ship (Vehicle Carrier)
- Ro-Ro Passenger Ship

The above-mentioned ship types are required to carry a verified SEEMP Part III and Confirmation of Compliance onboard from 1st January 2023. It includes a description of methodology to calculate ship's Attained CII, Required CII for the next three years, an implementation plan on how the required CII will be achieved for the next 3 years and a procedure for self-evaluation and improvement.

In simple terms, CII is a measure of how energy efficiently a ship transports goods or passengers. It is expressed in grams of CO₂ emitted per cargo-carrying capacity and nautical mile. Starting from 1st January 2023 ships are required to calculate attained annual operational CII for a calendar year (i.e. 1st January till 31st December) and report it to Flag Administrations / ROs by 31st March of the subsequent year. This yearly CII is calculated based on reported IMO DCS data.

The Attained Annual Operational CII is to be less than the Required CII. The required CII for a vessel depends on its reference line value and the reduction factor for any given year as shown in below figure:

Attained annual operational CII ≤ Required annual operational CII

$$\text{Attained CII} = \frac{M(\text{total mass of CO}_2)}{\text{Ship's Capacity X Distance Travelled}}$$

YEAR	Reduction factor relative to 2019
2023	5%
2024	7%
2025	9%
2026	11%

$$\text{Required CII} = \left(1 - \frac{Z}{100}\right) \times \text{CII}_{\text{Ref}}$$

Z is the annual reduction factor.
CII ref is the reference value of year 2019
 $\text{CII}_{\text{Ref}} = a \times \text{ship's capacity}^c$

The CII reference line value is determined based on MEPC 353 (78) (Also called as G2 Guidelines)

Upon verification of the Attained Annual Operational CII by Flag Administration / Recognised Organisations, a carbon intensity rating A, B, C, D or E will be assigned to each ship (rating "A" being the most superior and rating "E" the most inferior in terms of operational energy efficiency). Ship rated D for 3 consecutive years or rated as E is required to develop a plan of corrective actions to achieve the required annual operational CII.



Furthermore, it was also agreed at MEPC 78 and disseminated through resolution MEPC 355(78) (also called as G5 Guidelines) that certain ships under specified operating conditions could get corrections or voyage adjustments to their CII evaluation, either by removing the fuel consumed during periods of such operation or by reducing the CII value based on given criteria.

Considering the impacts which a CII rating can have on the vessel's charter, it is imperative that ship owners and managers accurately measure their energy efficiency in terms of various metrics. This can help them understand the problems they have as well as the improvements yielded by their chosen measures. Further, the regional regulations such as EU MRV, EU ETS and any other future global market based measure will also require accurate data collection due to their impacts on vessel finances.

The seafarer onboard has to deal with a number of administrative tasks and paperwork. Herein comes the important role which digitalisation can play to ensure a transparent and efficient reporting system while also minimising the possibilities of human errors. The foundation for any digitalisation policy is precise data collection of relevant parameters. Continuous monitoring of ship operations can provide real-time calculations of carbon intensity against various possible

energy efficiency metrics such as CII, EEOI, EEPI etc. Automation can ease the administrative burden on ship's crew while making the process more accurate and more efficient.

Since the requirement for IMO Data Collection System is in-force since 2019, many companies have embraced and successfully implemented digital tools in collection and reporting of the requisite data. These tools not only enable handling vast data across a fleet of vessels, but also provide the necessary transparency and speedier verification. With monitoring of CII having commenced, it requires an advanced reporting system that not only captures the basic DCS parameters, but also the CII correction factors and voyage adjustments prescribed as per IMO Guidelines.

Merely calculating CII at the end of the year may not be judicious as there is very little which a vessel could do to improve that year's CII Rating. If the predicted rating is monitored round the year, it provides the vessel an opportunity to do any course correction and implement new measures to achieve its targeted CII.

For the CII to be a successful measure without increasing administrative burden, it will be prudent that the industry embraces digital tools and technology centred on improving vessel efficiency.

There are several factors which influence the energy efficiency of a voyage such as weather, diversions, high risk piracy areas, machinery maintenance, cargo planning, just in time arrivals, waiting times at anchorage and ports. A better understanding of all the variables can help optimise the voyage from an energy efficient point of view.

Digitalisation is touching every aspect of shipping. It is helping create novel ship designs with focus on optimisation of parameters which can be custom selected. In the near

future, new construction vessels will be built with the forethought of being data-enabled and digital ready. As the industry is exploring various alternative fuels and is looking at them from a lifecycle or well-to-wake point of view, digital technologies could also help the industry in tracing complex lifecycle emissions.

By applying digital technologies and connectivity in its journey towards decarbonisation, shipping stands to benefit not only from an environmental perspective but also from an economic one.



Reaching the 20 million GT milestone

Generally, it is believed that a country can be considered a maritime nation in the true sense when its ship classification society has attained world recognition in professional competence. India took the first step in this direction when it formed Indian Register of Shipping, its national classification society.

The need for having an Indian ship classification society was recognised by the industry and the government due to the increase in Indian flagged commercial shipping tonnage, post-independence. Accordingly, Sir Ramaswamy Mudaliar first proposed to set up a National Classification Society in May 1967. In response, the Ministry of Shipping & Transport convened a meeting on May 29, 1967, under the chairmanship of Mr. K. C. Madappa, Joint Secretary. It was proposed that a Steering Committee be constituted for the purpose.

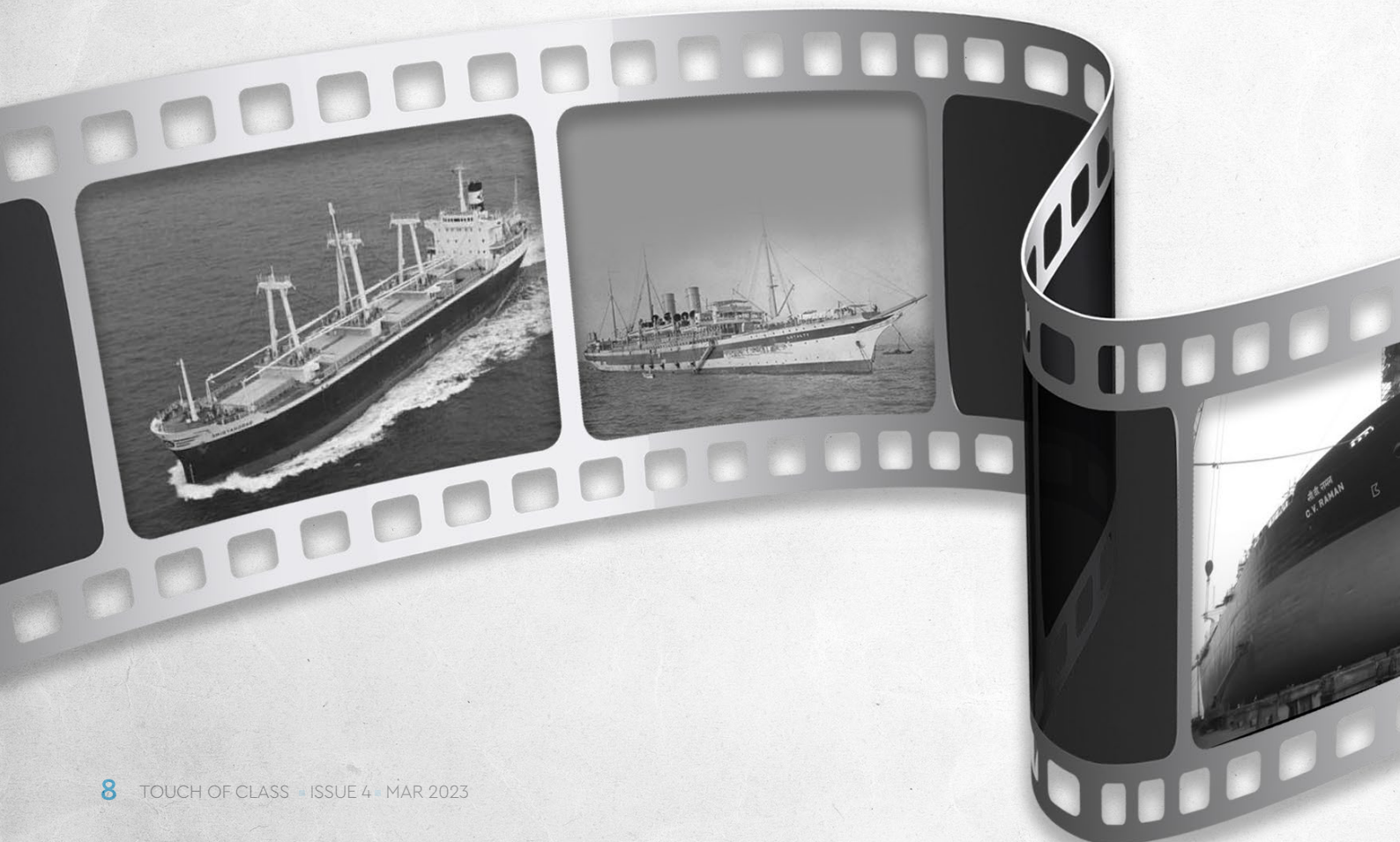
The Steering Committee constituted in June 1967, under the Chairmanship of Sir Ramaswamy Mudaliar, submitted its report in 1971 recommending the formation of a Classification Society. In the middle of 1974, a Promoters Committee with Mr. Pimpatkar

(the then Secretary of the Ministry of Shipping & Transport) as Chairman and Capt. J. C. Anand (the then Chairman, INSA and Chief Executive, India Steamship) as Vice Chairman along with representatives of ship owners, ship builders, insurers and the Government was formed to cover the groundwork.

It was decided that the society would be a non-profit making organisation and that it would be called the “Indian Register of Shipping” through a Cabinet decision (No 11 MAT (20)/74-MA dated 18 April, 1974) and registered as a public limited company under section 25 of the Indian Companies Act, 1956 with no share capital, no shareholders and distributing no dividends with all surplus earnings used to finance internal research and development activities and seeking to promote the objects for which it was established on 4 April, 1975.

The journey of Indian Register of Shipping (IRS) commenced with humble beginnings – a small office and a modest sized team equipped only with one passion – to build a high-quality Indian classification society.

The professional progression of IRS has been quite remarkable. Within 15 years of its formation, IRS was admitted as an “Associate Member” of the International Association of Classification Societies (IACS). With increase in its classed tonnage, an unblemished safety record and high standards of professional skill and integrity, IRS was admitted as a full member of the IACS in June 2010.



Over the years IRS employees have strived hard to build capability, offer high quality technical services while maintaining its commitment to highest safety standards in the industry.

From taking the 1st vessel under class in 1976 to reaching the milestone of 20 million GT, IRS has diligently worked its way to be recognised as a leading international classification society of repute.

Increasing tonnage, however, is only half the story. IRS continues to deliver quality classification and certification services, while providing our clients with value added expertise to ensure smooth compliance to various international and national regulations.

Seeking RO status from key maritime Flags Administrations is part of IRS' strategic focus. Recognition from leading maritime Flags Administrations reaffirms our technical expertise and capabilities as a major classification society. IRS is proud to have Recognised Organisation (RO) authorisation of 47 maritime flag administrations which collectively represent more than 55% of world fleet.

IRS has been a proud member of the International Association of Classification Societies. Despite being a relatively young classification society, IRS has come a long way from being a member to an active contributor within the IACS community.

In recent years, IRS has increasingly provided crucial technical guidance to improve energy efficiency of ships and achieve compliance. It is working closely with industry organisations on technological and regulatory aspects of alternate fuels like methanol, hydrogen and ammonia to evaluate their safety and potential contribution to reduction of greenhouse gas emissions.

IRS enjoys an excellent working relationship with all Indian and global shipyards catering to both merchant as well as defence sector projects. Over the years, IRS has built a robust and growing relationship with the defence sector including Indian Navy, Coast Guard as well as Indian Army.

As the organisation grows at a rapid pace, its presence is not restricted only to India. It is today, a class of choice for several clients worldwide be it Europe, Asia Pacific or Middle East. Its involvement in several pioneering projects is a reflection of the organisation's skill and competence as a leading classification society.

With a strong potential for growth in a rapidly changing global scenario, the organisation is on the right path to achieve even greater successes in the foreseeable future.





Cyber Risk Management - The 'Defence in depth' approach

In the earlier issues of Touch of Class, we have discussed about digitalisation, remote connectivity and cyber vulnerabilities. Increased cyber attacks necessitate that we undertake a structured approach, including understanding the anatomy of cyber attack before undertaking the protection of an asset. The 3 stage process which a hacker follows while attacking a cyber system was also briefly highlighted in previous issues.

In the journey of cyber risk management, after gaining an insight into the anatomy of cyber attack, it would be logical to understand the types of cyber attacks and the ways in which a system can be compromised.

Common types of cyber attacks

In general, there are two categories of cyber attacks - Untargeted and Targeted, which may affect companies and ships.

1. Untargeted attacks:

Where a company or a ship's systems and data are one of the many potential targets. Untargeted attacks are likely to use tools and techniques available on the internet to locate known vulnerabilities in a company and onboard a ship. Examples of some tools and techniques that may be used in these circumstances include:

- **Social engineering:** Where cyber attackers manipulate insider individuals to break security procedures, normally through interaction via social media.

Mr. R Srinivas -
VP & Sr. Principal Surveyor,
Plan Approval Centre



- **Water holeing:** Establishing a fake website or compromising a genuine website in order to exploit visitors.
- **Malware:** This is a term used to describe malicious software, including spyware, ransomware, viruses, and worms. Malware breaches a network through a vulnerability, typically when a user clicks a dangerous link or email attachment that then installs risky software. Once inside the system, malware can do the following:
 - Block access to key components of the network (ransomware)
 - Install malware or additional harmful software
 - Covertly obtain information by transmitting data from the hard drive (spyware)
 - Disrupt certain components and renders the system inoperable
- **Ransomware:** It is a type of malicious attack where attackers encrypt an organisation's data and demand payment to restore access.
- **Scanning:** Attacking large portions of the internet at random.

- **Phishing:** Phishing is the practice of sending fraudulent communications that appear to come from a reputable source, usually through email. The attacker sends emails to a large number of potential targets asking for particular pieces of sensitive or confidential information. Such an email may also request that an individual visits a fake website using a hyperlink included in the email. The goal is to steal sensitive data like credit card and login information or to install malware on the victim's machine. Phishing is an increasingly common cyberthreat.

2. Targeted attacks:

Where a company or a ship's systems and data are the intended target. Targeted attacks may be more sophisticated and use tools and techniques specifically created for targeting a particular company or ship. Examples of tools and techniques which may be used in these circumstances include:

- **Spear-phishing:** Similar to phishing but the individuals are targeted with personal emails, often containing malicious software or links that automatically download malicious software.
- **Subverting the supply chain:** Attacking a company or ship by compromising equipment or software being delivered to the company or ship.
- **Man-in-the-middle attack:** Man-in-the-middle attacks, also known as eavesdropping attacks, occur when attackers insert themselves into a two-party transaction. Once the attackers interrupt the traffic, they can filter and steal data.
Two common points of entry for Man-in-the-middle attack are:
 - i. On unsecure public Wi-Fi, attackers can insert themselves between a visitor's device and the network. Without knowing, the visitor passes all information through the attacker; and
 - ii. Once malware has breached a device, an attacker can install software to process all of the victim's information.

- **Denial-of-Service attack:** A Denial-of-Service (DoS) attack is an attack meant to shut down

a machine or network, making it inaccessible to its intended users. DoS attacks accomplish this by flooding the target with traffic or sending information that triggers a crash.

A Denial-of-Service attack floods systems, servers, or networks with traffic to exhaust resources and bandwidth. As a result, the system is unable to fulfil legitimate requests. Attackers can also use multiple compromised devices to launch the attack known as a Distributed-Denial-of-Service (DDoS) attack.

- **SQL injection:** A Structured Query Language (SQL) injection occurs when an attacker inserts malicious code into a system where the server uses SQL. The code forces the server to reveal information.
- **Zero-day attack:** The term "zero-day" refers to the fact that the vendor or developer has only just learned of the flaw – which means they have "zero days" to fix it. A zero-day attack takes place when hackers exploit the flaw before developers have a chance to address it.
- **SCADA attacks:** Supervisory Controls and Data Acquisition (SCADA) protocols are communications protocols designed for the exchange of control messages on industrial networks. Over the past three decades, several hundreds of these protocols have been developed for both serial, LAN and WAN based communications in various types of industries including petrochemical, automotive, transportation and power generation, distribution etc. Some known automation protocols are MODBUS, EtherNET/IP, PROFIBUS etc.

Gaining access to SCADA system without legitimate authorisation is a task by itself. The intruder generally sets himself multiple goals towards the above. For example, an attacker with intention to gain access to SCADA system using MODBUS would set himself eleven goals, as indicated below, to gain crucial information/control of the system.

1. Gain SCADA System Access, 2. Identify MODBUS Device, 3. Disrupt Master-Slave Communications, 4. Disable Slave, 5. Read Data from Slave, 6. Write Data to Slave 7. Program Slave, 8. Compromise Slave
9. Disable Master, 10. Write Data to Master, 11. Compromise Master

(...To be continued in next edition)

Assessment of High-Speed Crafts with Numerical Techniques

Mr. Sharad Dhavalikar,
Principal Surveyor,
Research and Development



Introduction

As per International Code of Safety for High-Speed Craft, 2000 (HSC code) Ch 17, the operational safety of the craft in normal service conditions and equipment failure situations shall be documented and verified by full-scale tests, supplemented by model tests where appropriate, of the prototype craft. The objective of tests is to determine the information to be included in the craft operating manual about operating limitations. Thus, the final acceptance (approval) is subject to full-scale measurements. However, an initial assessment can be performed with the aid of numerical analysis which can be treated as approval in principle.

Requirements / Criteria

Following are few of the various codes, standards and rules applicable for High-Speed Crafts (HSC) or light crafts in context with the safety and comfortability of HSC:

1. International Code of Safety for High-Speed Craft, 2000
2. Classification society rules e.g. IRS Rules and Regulations for the Construction and Classification of High-Speed Crafts and Light Crafts
3. ISO 2631-3:1985, Evaluation of human exposure to whole-body vibration — Part 3: Evaluation of exposure to whole-body z-axis vertical vibration in the frequency range 0,1 to 0,63 Hz
4. NORDFORSK 1987, Seakeeping Criteria - General operability limiting criteria for various types of ships

Sr.	Parameter	Limit	Reference	Inference
1	Vertical acceleration:			
	Avg of highest 1%	1.0 g	2	Structural strength
	At LCG	0.45g	2	
	Single amplitude	1.0 g	1	Structural strength
	RMS (over time)	0.3 g	Literature	Passenger comfort
	Over octave bands	1m/s ² up to 0.315 Hz (30min duration)	3	Seating design/ Passenger comfort
2	Horizontal Acceleration (Single amplitude)			
	Level 1	0.2 g Probability level = Reasonably probable (10 ⁻³ – 10 ⁻⁵)	1	Moderate degradation of Safety: Corresponds to operating limits
	Level 2	0.35 g Probability level = Improbable (10 ⁻⁵ – 10 ⁻⁷)	1	Significant degradation of Safety: Corresponds to emergency procedures

Full-scale testing may indicate non-compliance with the above-listed parameters and design changes or any other mitigations may not be feasible at that stage. Hence, numerical techniques can well be utilized to check compliance at the design stage. Additionally, numerical assessment can assist in finding the operational limits for on-board equipment, e.g. the stabilized remote control guns on fast naval / coastguard vessels.

Numerical techniques and Sample cases

Numerical assessment involves Seakeeping analysis based on frequency domain or time domain methodologies. It primarily simulates the vessel moving at high speed in the waves of desired sea conditions (sea state). The head sea and beam sea cases for vertical and horizontal acceleration respectively are simulated. Rankine Panel Method (RPM) based codes could be typically used for simulating high speeds. Recent advancements in Computational Fluid Dynamics (CFD) allow the simulation of such cases based on RANS (Reynolds Averaged Navier Stokes) equation-based methods. RANS-based solutions are computationally intensive. The only advantage with RANS would be finding severe impact loads (e.g. bottom slamming, deck wetness) which otherwise would not be possible with traditional RPM codes. Requirements for additional strengthening for impact loading by class rules can also be checked.

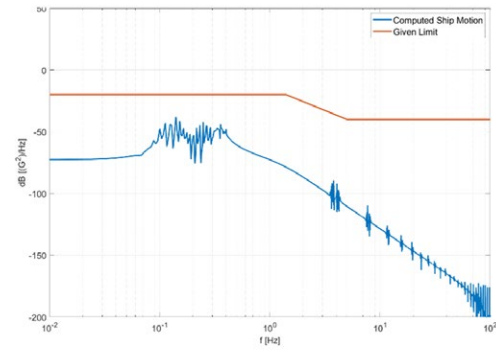
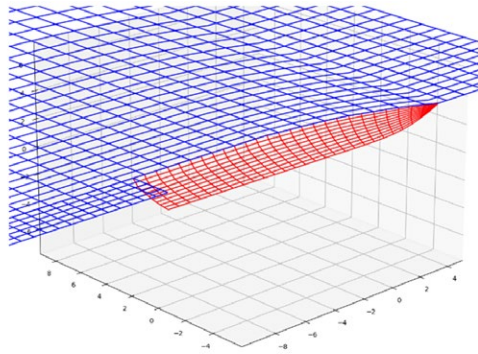


Fig – HSC monohull: Mesh for RPM code and Power spectral density of longitudinal acceleration for gun foundation

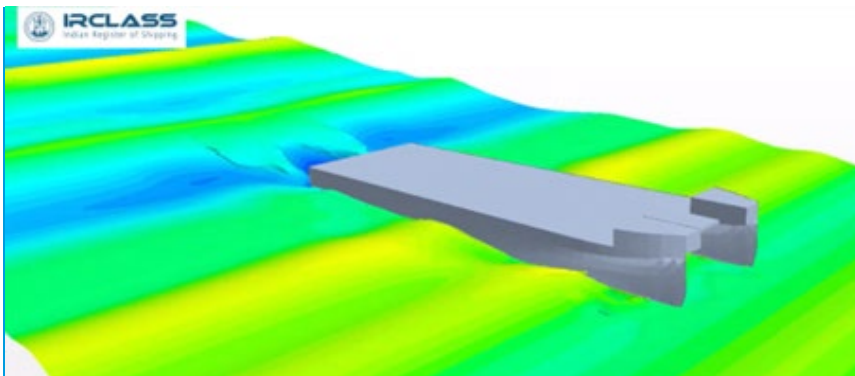


Fig – HSC catamaran in a head sea

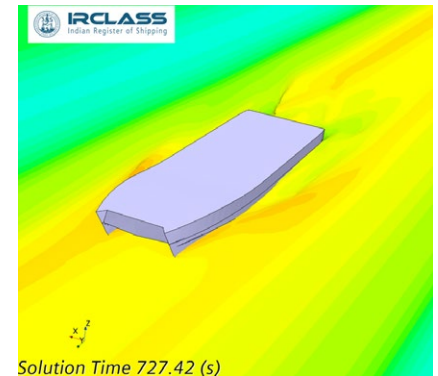


Fig – HSC catamaran in beam sea

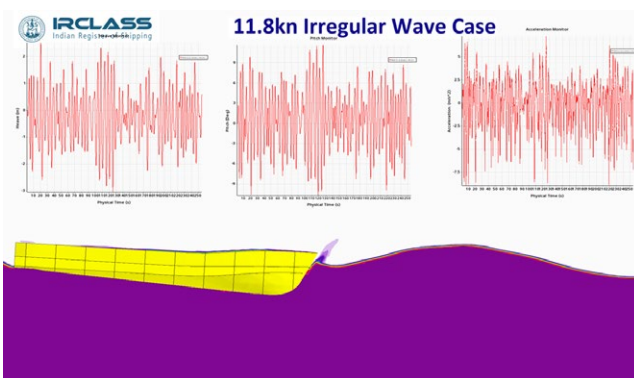
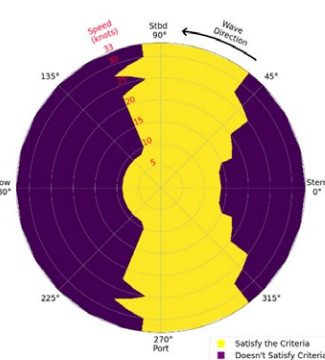


Fig – Operational guidelines (longitudinal acceleration) for deck equipment of HSC for a given sea state



Conclusions

Numerical techniques for assessing the safety and comfortability of the high-speed craft are briefly discussed. These techniques can be used at the initial design stage to check the compliance with HSC code. Design iterations can be followed accordingly. These techniques can also help in evaluating specific requirements of the deck equipment of high-speed crafts.

Program Management Consultancy Services



IRCLASS Systems & Solutions Pvt Ltd., (ISSPL) promoted by Indian Register of Shipping offers industrial services to ensure that customer's materials, equipment, installations, facilities and projects meet all quantity, quality and performance requirements, whether they are regulatory, voluntary or customer based.

Mr. Royston D'silva,
Deputy General Manager,
Industrial Services



Sectors Served

General Engineering

Components, Equipment & Machineries, Integrated Systems

Power & Process

Conventional Power, Nuclear Power, Transmission and Distribution, Chemical & Petrochemicals, Process Plants, Dairy & Food Processing Plants

Oil & Gas

Upstream, Midstream and Downstream

Building & Infrastructure

Ports, Transportation, Water, Mining, Building and Materials

Renewables

Solar and Wind Energy Projects

Background of Assignment

At present, IIT Bombay caters to about 12,000 students with a total built-up area of 9.00 lakh sq.m. of building area. The Institute envisages a total student strength of 20,000 in the next five to ten years. To cater to this additional strength of students, infrastructure development like construction of academic, residential, and hostel buildings, and upgradation of external services are proposed to be taken up in a phased manner to have a total built-up area of about 19.0 lakh sq.m. over 10 years.

For the next 5 years, the plan is to expand the total built-up area by 2.25 lakhs sq.m. The projects include academic blocks, research facilities, hostel buildings, residential quarters and allied infrastructure.

Recently ISSPL was awarded Program Management Consultancy Services by IIT Bombay



To achieve this mission, IITB has appointed ISSPL as the sole agency to provide Program Management Consultancy for the next five years while ensuring time, cost and quality objectives are met while performing the following activities (but not limited to):

- Administrative approval of the project by IITB till architectural and engineering design, statutory approvals and construction of the building including services and smooth handing over of the building to the satisfaction of IIT Bombay.
- Active coordination with IIT Bombay and the architectural firm in finalising all drawings, BIM models and bills of quantities, obtaining all the necessary statutory approvals for the commencement and completion of construction work and GRIHA certification.
- Provide all the relevant information and reports sought by the CVC inspection team for all queries raised by them till the closure of cases, if any.
- Ensure a smooth and uninterrupted flow of working drawings to the construction agency so that the construction activity will not get hindered.
- Responsible for the site supervision, quality assurance & control, safety, and total documentation of all records of testing of materials as per the latest BIS standards.
- MIS reporting indicating progress, risks, mitigation plan and action points.

Testing Services

Dr. Sudeb Mandal,
National Head,
Testing Services



ISSPL strives to be recognised as the most reliable, customer-focused and a trusted partner of choice for quality, safety and sustainability solutions across industries.

In this direction, ISSPL acquired a test laboratory in February 2022 which is a part of the CEG Test House at Jaipur including Food, Water, Environment and Pharmaceutical testing facility. This testing facility is accredited by NABL to ISO 17025:2007 and has approval from FSSAI, EIC and MoEF-CC.



Portfolio of testing services includes providing detailed technical and analytical solutions. This testing facility has latest technology and equipment including LC-MS/MS, GC-MS/MS, ICP-MS, HPLC, GC, IC, FT-IR etc. Our clients include leading corporate houses, exporters, traders, govt. & public sector organisations and medium and small-scale enterprises across various industries in India and abroad.

Food & Water Testing



This lab offers a comprehensive range of food safety and quality solutions to help consumer confidence and sustainable business, mitigate risk and improve performance at every stage of the value chain. We have testing facilities for various food products and water including :

- Milk and dairy products
- Raw and processed food
- Sweets & confectionary
- Bakery products
- Ready-to-eat products
- Meat and fish products, egg and poultry products
- Alcoholic and non-alcoholic drinks, beverages, breweries
- Cereals and pulses
- Fruits and vegetables, nuts, raisins & dry fruits
- Oils and fats, spices and condiments
- Sugar and tea
- Ground water and drinking water as per IS 10500
- Processed water
- Pharma/dialysis water

The lab undertakes testing towards nutritional analysis, microbiological analysis, antibiotic residue, heavy metal, mycotoxin, packaging materials and shelf life.

Pharmaceuticals & Ayush Testing



ISSPL provides testing for a wide range of pharmaceutical products starting from raw materials, excipients, Active Pharmaceutical Ingredients (APIs), vitamins, parenteral preparations, sutures ligatures, medical devices & surgical items as per Indian and International Pharmacopeia Standards (IP, EP, BP, USP, JP etc.). Identification is undertaken by various methods including UV, HPLC, FTIR, physicochemical testing, assay, related substance/impurity, stability testing, method validation, particulate matter and Microbiological Analysis (Sterility, BET).

Environment Monitoring & Testing



Compliance to national and international rules and regulations to reduce impact on environment is a norm towards responsible business practices. ISSPL assists in monitoring and testing services for environmental protection, workers' health & safety and regulatory compliance, through a dedicated field team and experienced laboratory personnel. Complete range of services are offered for organic, inorganic and VOC analysis, using classical wet chemistry, towards monitoring of air, water, soil testing, noise and weather monitoring, baseline study, stack emission, indoor air quality testing, industrial hygiene study and performance guarantee & evaluation test.

Key Press Releases

Indian Register of Shipping Review of 2022 and Outlook for 2023 - going from strength to strength
IRS has once again achieved strong and sustained business growth with inroads into new markets and an increased global geographical presence.

Indian Register of Shipping completes prototype testing of indigenously manufactured ISO containers

IRS has completed prototype testing of indigenously manufactured containers in accordance with IMO International Convention for Safe Containers (CSC).

Indian Register of Shipping (IRS) awarded noise & vibration measurement and analysis work by Colombo Dockyard PLC

IRS has been providing services towards noise and vibration measurement and analysis for more than two decades. IRS was awarded the work of Noise & Vibration Measurement and Analysis for 6 bulk carriers by Colombo Dockyard PLC, Sri Lanka.



Indian Register of Shipping signs MOUs with GRSE, HSL and GSL at DEFEXPO 2022 Strengthens Atmanirbhar initiative in Defence Shipbuilding

During the Bandhan ceremony at DEFEXPO 2022 exhibition, IRS formalised MOUs with Garden Reach Shipbuilders & Engineers Ltd (GRSE), Hindustan Shipyard Ltd (HSL) and Goa Shipyard Ltd in the presence of Honourable Defence Minister Shri Rajnath Singh.



For details, visit - <https://www.irclass.org/media-and-publications/news/>

Vessels – Classed, Launched & Delivered

Indian Register of Shipping (IRS) undertakes classification services for Floating Dock and New Generation OPVs at Goa Shipyard

The design and construction of the 120m long Floating Dock being built for the Sri Lankan Navy, under a grant from India will be certified by IRS. The second project comprises “New Generation” Offshore Patrol Vessels (NGOPVs) for the Indian Navy. The vessels will be validated by a well-qualified IRS team, experienced in technical analysis and stealth studies.

Pioneering Diving Support Vessels classed with the Indian Register of Shipping launched

In another testimony to Atmanirbhar (self-reliance) in Defence, two Diving Support Vessels (DSVs) being built under the class of Indian Register of Shipping have been launched by Hindustan Shipyard Limited (HSL) in Vishakhapatnam, India. The two diving support vessels, Nistar and Nipun, are 118.4m long, 22.8m-wide and have a displacement of 9,350t.



Ikshak, 3rd ship of the Survey Vessel (Large) project launched

Ikshak, 3rd ship of the Survey Vessel (Large) project for the Indian Navy was successfully launched at the event held jointly by GRSE & L&T Shipbuilding. Ikshak is being built under IRS Classification.



M. V. NAYAN XI

Passenger
Nayantara Shipping Pvt. Ltd.



MINAR

Catamaran Ferry
Jayesh Shipping Pvt. Limited



M. T. DELTA LPG – 1

LPG carrier
Delta LPG Limited

Events, Webinars & Conferences

Indian Register of Shipping supported INMARCO 2022 was a huge success – 17-19 Nov 2022, Mumbai



IRS played a central role as a 'Principal Supporter' in the event by way of leading the INMARCO 2022 Advisory Committee, and participating in various Sub-Committees – Technical, Finance and Event Management. IRS contributed extensively through papers, presentations and panel discussions on topical subjects.

IRS stand was visited by dignitaries including Honourable Governor of Maharashtra Shri Bhagat Singh Koshiyari and Shri. Sarbananda Sonowal, Hon'ble Minister of Ports, Shipping & Waterways.

Indian Register of Shipping holds Stakeholders Meet on Research & Development activities in Mumbai – 29 Aug 2022



IRS hosted a Stakeholders Meet on Research & Development activities at its Head Office in Mumbai, as part of its efforts to strengthen its initiatives in this field. The stakeholders' meet was well appreciated by the participants and valuable inputs related to Research and Development activities were received from the industry. The event saw an engaging and interactive Q&A session towards the end of the presentations.

For details, visit - <https://www.irclass.org/media-and-publications/news/>

Indian Register of Shipping holds Advisory Committee Meeting and Customer Meet in Singapore



The committee members and IRS led by Mr. Arun Sharma exchanged views on strategic moves in the region and a range of new initiatives for the classification society were proposed. The meeting, which took place on August 11, 2022, was followed by a dinner attended by a cross-section of the maritime fraternity from Singapore.

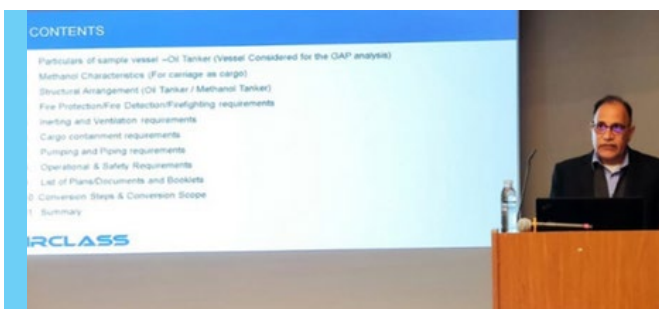
Customers and Stakeholders Meet of Indian Register of Shipping draws good response from Indian maritime fraternity – 16 Sep 2022, Mumbai



IRS' Advisory Committee Meeting and Customer & Stakeholders Meet is a regular annual feature and a go-to event in the Indian maritime calendar. The meet in Mumbai saw a good representation of the maritime industry participants and academia. A presentation on the recent updates concerning fleet growth, upcoming regulations, new services and initiatives, was well received.

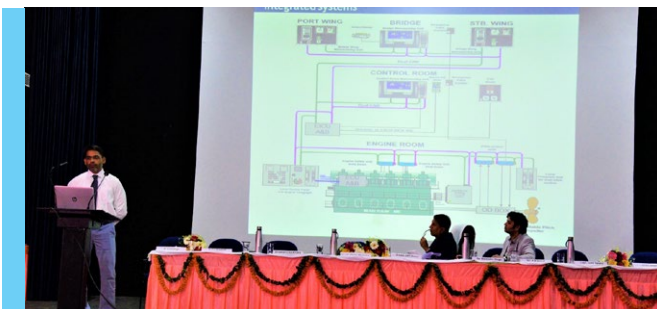
IRS participation in conferences & seminars

Decarbonization: The rise of methanol as a future proof fuel organised by Sea Commerce America, Methanol Institute & KOSBER - 7 Mar 2023, Istanbul, Turkiye



Our MD, Mr. Vijay Arora was a speaker, addressing "Class perspective about methanol's use in India".

All India Seminar Marine ESG (Environmental, Social and Governance) Shipping and Offshore Operation organized by – Institute of Engineers (India), Uttarakhand State Centre - 25-26 Feb 2023, Dehradun



Mr. Avinash Vaze, Senior Surveyor, PAC gave a presentation on "Maritime Cyber Risk Management".

Seminar on the Outcome of MEPC 79 - 07 Jan 2023



IRS Subject Matter Experts spoke on the below subjects –

- Mr. P. K. Mishra, Head of Operations - Reduction of GHG Emissions from Ships.
- Mr. N. Girish, DH - RDAREA – Consideration & Adoption of Amendments to Mandatory Instruments.
- Mr. Devrup Kabi, Head SBPM – Air Pollution Prevention and Energy Efficiency.

Maritime Occupational Health & Safety Summit 2023 - 12 Jan 2023

Mr. Karthik Seetharaman, Senior Surveyor spoke on 'Importance of the Class Certification for HSE Products in Maritime' at Maritime Occupational Health & Safety Summit 2023.

Safety of Inland Vessels - Class Perspective - 26 Aug 2022

Cdr KK Dhawan, Head Defence, shared his insights on 'Safety of Inland Vessels - Class Perspective' in a webinar organised by Forum for River and Ocean Scientists and Technologists (FROST).

Workshop on World Maritime Day - 29 Sep 2022

Amit Bhatnagar, Head IRClass Academy shared his perspectives on 'New technologies for greener shipping' at the Workshop on World Maritime Day organised by Rashtriya Raksha University India.

34th National Convention of Marine Engineers, Visakhapatnam - 2-3 Dec 2022

Dr. Asokendu Samanta, Divisional Head (R&D Division) spoke on "Role of Classification Societies in the Development of Maritime Technologies towards Green Shipping" at the 34th National Convention of Marine Engineers.

Conference on Bunkering in India - 23 Sep 2022



Mr. Siddhesh Prabhu, Senior Surveyor shared his insights on "Biofuels" at the Conference on Bunkering in India.

Employee Corner

IRCLASS Annual Day 2022

IRCLASS recently celebrated its much awaited Annual Day on 23rd of December 2022. This year's event was held after a gap of 3 years but the grandeur of the event made up for the lost opportunities.

Annual Day Celebration is the perfect time to reminisce and take pride in the many achievements of the organisation and an opportunity for the employees to connect with each other and the management.

Keeping with the tradition, a Reward and Recognition ceremony was held to appreciate the performance excellence of employees for the year. 60 employees were awarded with the best performance award. 7 long serving employees were also felicitated for their dedication and their commitment towards the organisation. The recognition for Best Indian Survey Station for the year 2022 was awarded to Vizag and the recognition for Best Foreign Survey Station was awarded to London and Istanbul.

The event also had foot-tapping songs, fashion show, dance performances and soul touching poetry by Ms. Priya Malik.

It was an evening filled with fun & excitement and the entire team of IRCLASS participated with enthusiasm to celebrate the achievements and milestones.



Courses and Training

IRClass Academy has seen significant growth and positive enhancement of several training courses conducted during the year 2022.

In addition to the participants from the maritime industry, IRClass Academy is also actively engaged with highly skilled training of the Indian Navy, Indian Coast Guard and premier shipbuilding yards of the country. The in-person training programs for Hindustan Shipyard, Cochin Shipyard and the Indian Coast Guard, were completed by IRClass Academy. Two batches of in-person courses for the Indian Coast Guard were conducted from 7-18 February and 31st Oct to 11th Nov 2022 at the IRS Head Office, Mumbai.



Workshop on Port Security: Challenges and Responses with PFSO certification - 6-10 Feb, 2023

IRClass Academy in collaboration with Gujarat Maritime Board (GMB) and Rashtriya Raksha University (RRU) conducted a PFSO course at the Rashtriya Raksha University for a large number of participants from GMB as a part of a Workshop on Maritime & Coastal Security at RRU campus, Ahmedabad.

Training Courses in Bandung, Indonesia - Oct, 2022

IRClass Academy conducted a series of training courses for maritime professionals in Bandung, Indonesia. The training courses which were held over two weeks were attended by senior professionals from various shipping companies based in Indonesia and Malaysia. Several training courses were delivered including ISM internal auditor & DPA, Company Security Officer, MLC awareness, Maritime Risk assessment, Cyber Safety, Enhancing Superintendent Management skills and Safety Officer. The response received from overseas candidates is quite encouraging.

IRClass Academy regularly conducts a large number of specialized training programs online and via classroom.

For course calendar and details, visit: <https://www.irclass.org/academy/scheduled-courses>





Induction Training

Classroom Induction Training was held from 30th Jan to 10th Feb 2023 at the IRS Head Office. Twenty-three Surveyors participated in this programme of which fourteen Surveyors were from various survey stations and Head Office. Various topics on Survey, Certification including newer topics covering the upcoming requirements of MARPOL Annex VI regulations like EEXI, SEEMP - Part III, CII; additional requirements in Ballast Water Management; SPS code along with DGS requirement; Remote survey etc. were included as part of the ten-day training programme.

Training for Surveyors from Kenya Maritime Authority

Surveyors from Kenya Maritime Authority have successfully completed the first term of their 48 month training programme in Dec 2022. They have returned to their parent organisation as per the schedule and shall commence their second term in July 2023.

Training on First Aid

A one-day session on First-aid training covering theory and practicals was held on the 11th of Oct 2022 for 29 participants. The session was conducted by 'The Life Line Institute of First Aid and Emergency Medicine' a leading Institute providing such training. The training comprised of the Do's and Dont's while attending to an accident victim while providing first aid and transporting the victim to the hospital; providing CPR; bandaging different severity of fractures with available resources; handling of snake bites or other venomous stings. All participants were given hands-on experience with CPR on a mannequin. An assessment was done as part of the session and all participants performed very well.

Induction Training



Sad Demise



Mr. Sandip Chaudhari
(03/10/1984 - 13/02/2023)



YOUR PARTNER IN MARITIME RISK MANAGEMENT



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-  MANAGEMENT SYSTEMS CERTIFICATION
-  EDUCATION & TRAINING



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