# iMélange

March 2026


*Monthly Magazine of The Institute of Marine Engineers (India)*

# The Institute of Marine Engineers (India)

**IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai.**

Tel: +91 – 8454847896/ 022-27711663
Email: training@imare.in. Website: https://imare.in/

## REGISTRATION OPEN FOR Following DGS APPROVED COURSES

- Basic Training for Ships using Fuels covered within IGF code ***Course Id – 5311*** (OFFLINE) – (5 Days) - 28th March 2026/ 13th April 2026/ 20th April 2026/ 4th May 2026/ 18th May 2026/ 01st June 2026/ 22nd June 2026
- Assessment, Examination and Certification of Seafarers ***Course Id – 1062*** (OFFLINE) – (12 Days) - 11th May 2026/ 13th July 2026
- Advanced Training for Ships using Fuels covered within IGF code ***Course Id – 5312*** (OFFLINE) – ( 5 Days) - 7th April 2026/ 12th May 2026/ 9th June 2026
- MEO Cl. I (FG) : 2- months course (OFFLINE) - 2nd May 2026 / 1st July 2026 / 1st Sep 2026 / 2nd Nov 2026 (followed by Simulator course) **Discount on combined bookings of Class I Course with Simulator**
- MEO (CEO – NCV) – STCW 2010: 2 month course (OFFLINE) – 01st July 2026 / 02nd November 2026
- MEO (SEO – NCV) Part-A - STCW 2010: 2-month course (OFFLINE) – 01st August 2026
- MEO (SEO – NCV) Part-B - STCW 2010: 4-month course (OFFLINE) – 02nd May 2026 / 2nd Nov 2026
- MEO Cl. IV (NCV) - STCW 2010 - 4 months course (OFFLINE) – 01st July 2026
- MEO (CEO – NCV) BRIDGING COURSE: 15 Days (OFFLINE) – 01st April 2026 / 01st June 2026 / 03rd Aug 2026 / 01st Oct 2026 / 01st Dec 2026
- MEO ( NCV – SEO ) BRIDGING COURSE: 1 Month (OFFLINE) – 2nd May 2026/ 01st July 2026
- MEO CL. II (FG): 4-month Course (OFFLINE) – 01st April 2026/ 2nd May 2026/ 01st June 2026/ 01st July 2026/ 01st Aug 2026/ 01st Sep 2026/ 01st Oct 2026 / 01st Nov 2026/ 01st Dec 2026 (Discount on combined bookings of Class II Courses with Simulator)
- REFRESHER & UPDATING TRAINING (RUT - 4 DAYS) COURSE FOR REVALIDATION OF COC FOR ALL ENGINEERS and ETOs (OFFLINE) – 25th March 2026 / 08th April 2026 / 15th April 2026 / 27th April 2026 / 05th May 2026 / 12th May 2026 / 19th May 2026 / 02nd June 2026 / 15th June 2026 / 24th June 2026 / 07th July 2026 / 14th July 2026 / 22nd July 2026 / 03rd Aug 2026 / 10th Aug 2026 / 19th Aug 2026
- ENGINE ROOM SIMULATOR MANAGEMENT LEVEL (3 DAYS) COURSE FOR MEO CLASS I (OFFLINE) – 28th April 2026 /02nd May 2026 / 06th May 2026 / 27th June 2026 / 01st July 2026 / 28th Aug 2026 / 01st Sept 2026 / 29th Oct 2026 / 02nd Nov / 29th Dec 2026
- ENGINE ROOM SIMULATOR MANAGEMENT LEVEL (5 DAYS) COURSE FOR MEO CLASS II (OFFLINE) – 26th March 2026 / 01st April 2026/ 25th April 2026 / 02nd May 2026 / 26th May 2026 / 01st June 2026 / 25th June 2026 / 01st July / 27th July 2026/ 01st Aug 2026/ 26th Aug 2026/ 01st Sep 2026 / 25th Sep 2026 / 01st Oct 2026/ 27th Oct 2026/ 02nd Nov 2026/ 25th Nov 2026 / 01st Dec 2026/ 26th Dec 2026
- ENGINE ROOM SIMULATOR OPERATIONAL LEVEL (3 DAYS) COURSE (OFFLINE) - 08th April 2026 / 11th May 2026 / 08th June 2026
- MEO Cl. IV(FG) non mandatory course (2months duration) – On request

**For Payment: Visit https://imei-mum.marineims.com/course/register**

**For enquiries contact on training@imare.in**

**For registration of Courses, visit:**
https://imeimum.marineims.com/course/register

**Features:**
**Experienced Faculty,**
**Individual Attention**

# CONTENTS




*Administration Office:*
**IMEI House**
Plot No. 94, Sector -19, Nerul, Navi Mumbai 400 706.
Tel. : +91 22 2770 1664 | Fax : +91 22 2771 1663
E-mail: editornewsletter@imare.in
Website: www.imare.in

*Editor-in-Chief (Hon.):* **Sunil Kumar**

*Editorial Board:*
**S.M. Rai**
**Ramesh Vantaram**
**Jagmeet Makkar**
**Hrishikesh Narasimhan**
**Krishnamurthy Balaji**
**Suneeti Bala**
**Vivek D. Prasad** (*Hon. Associate Editor*)
**Rashmi Tiwari** (*Associate Editor*)

*Edited and Published by:*
**Sunil Kumar** on behalf of
The Institute of Marine Engineers (India).
Published from 1012,
Maker Chambers V,
221 Nariman Point,
Mumbai - 400021.

*Printed by:*
**Corporate Prints**
Shop No.1, Three Star Co-op. Hsg. Society, V.P Road, Pendse Nagar, Dombivli (E) - 421 201.
District - Thane

*Design and Layout:*
**Kryon Publishing Services (P) Ltd.,**
*www.kryonpublishing.com*

**THE INSTITUTE OF MARINE ENGINEERS (INDIA)**
MUMBAI BRANCH ALONG WITH ITS CHAPTERS
GUJARAT AND NAVI MUMBAI

In association with

MINISTRY OF PORTS, SHIPPING AND WATERWAYS

IRCLASS Indian Register of Shipping

Platinum Sponsor

# Theme: Maritime Landscape 2030 Opportunities and Challenges

INMARCO 2026

**Request you to kindly "save the date" for**

## International Maritime Conference cum Exhibition 2026

**WHEN** 27th to 29th Oct 2026

**WHERE** Westin, Powai, Mumbai

## ABOUT THE CONFERENCE:

Since its inception in 1982, INMARCO has always witnessed an overwhelming response from the Maritime sector which in turn had inspired IME(I) to organise INMARCO quadriennially.

Papers are invited from Engineers, Manufacturers, Designers, Shipbuilders, Operators, Students, Educators, Researchers, Recyclers, Adjudicators, Salvors, Class, Administrators, Marine Infrastructure Companies, Port Operators, Surveyors, Maritime Lawyers, Navies, Coast Guard and other Maritime related stakeholders.

Sessions on current topics with emminent panelists and moderators.

Curated Competitions for Students from MTIs, Maritime Universities and Marine Divisions of Engineering Colleges.

**Contact us for more details:** info@inmarco.in | inmarco@imare.in Mr. Suraj Negi +91 9967481448

# From the Editor's Desk

**Dear Esteemed Readers,**

March brings with it a sense of continuity and consolidation as the maritime sector steadily builds on the momentum of the new year. This edition of *iMélange* reflects a balanced blend of legacy, innovation and forward-looking policy—capturing how tradition and transformation continue to shape our industry.

A notable highlight this month is the **50th Annual Contributory Meet of the IME(I) Kolkata Branch**, a significant milestone that celebrates decades of professional camaraderie, knowledge sharing and institutional strength. Such occasions remind us that the maritime fraternity is not only built on technical competence but also on enduring relationships and shared purpose.

In Mumbai, maritime professionals came together for the **IME(I) Annual Technical Seminar and Get-Together 2026**, reaffirming the value of continuous learning and collaboration. Similarly, Pune hosted the **19th edition of Transtech 2026**, where emerging technologies and industry trends were discussed with enthusiasm and depth. In Vizag, a thought-provoking session on **"The Marine Engineer's Role in Validating AI-Driven Decisions"** highlighted the evolving interface between human expertise and artificial intelligence—underscoring that while technology advances, the responsibility of informed judgement remains firmly with the marine engineer.

From the global regulatory perspective, this issue brings an update on the **IMO's STCW Review**, a development that holds far-reaching implications for maritime training and competency standards. As the industry undergoes rapid technological transformation, the need to align training frameworks with future operational realities has never been more critical.

On the infrastructure and policy front, several key developments signal India's continued commitment to strengthening its maritime ecosystem. The approval of a **₹797 crore Green Hydrogen Jetty at Paradip Port** marks a progressive step toward cleaner energy integration in port operations. The **Goa Coastal State Workshop 2026** further emphasized collaborative efforts to enhance coastal and maritime capabilities.

The government's focus on long-term growth is evident through initiatives aimed at **strengthening the shipbuilding sector** via financial assistance and development schemes. At the same time, active engagement with the **National Shipping Board** reflects a proactive approach to addressing sectoral challenges amid global uncertainties.

Connectivity and inland waterways continue to receive significant attention. The **inauguration of the elevated port corridor in Guwahati** and key projects on the **Brahmaputra under National Waterway–2** are steps toward enhancing multimodal logistics and regional integration. In a landmark technological advancement, **V.O. Chidambaranar Port becoming the first Indian major port to implement Digital Twin technology** showcases the increasing role of digitalization in improving efficiency, planning and operational resilience.

Our student section this month explores **Carbon Capture Technology as a potential pathway to reduce marine greenhouse gas emissions**, reflecting the growing importance of innovative solutions in achieving sustainability goals.

As we reflect on March's developments, it is evident that the maritime sector is navigating a path where experience meets innovation and policy aligns with progress. The journey ahead calls for adaptability, collaboration and a continued commitment to excellence.

We invite our readers and contributors to share their articles, insights and feedback at editornewsletter@imare.in or subeditor@imare.in by **7th April 2026**.

**SUNIL KUMAR**
*Editor-in-Chief (Hon.) – iMélange*

# ANGLO EASTERN
## MARITIME TRAINING CENTRE


AEMTC MUMBAI : 401, Fourth Floor, Leela Business Park, Marol, Andheri-Kurla Road, Andheri (East), Mumbai-400 059.
T. +91 22 6720 5600 / 611 / 612 |
A.O.H. +91 8657408962 / +91 9820917656
aetr.bom@angloeastern.com
Mr. Francis Akkara, Capt. Liston Pereira, Mr. Ivor Wilson

AEMTC DELHI : A-43, Ground Floor, Mohan Co-Operative Industrial Estate, Mathura Road, Delhi-110044, India.
T. +91 11 6817 0800, 0801 / +91 9811248649 / 9650
aetr.del@angloeastern.com
Capt. Shashank Gaur, Ms. Sukhjeet Kaur, Mr. Suresh Kumar


Anglo Eastern Maritime Training Centre | aemaritimetrg | For more details visit website | www.maritimetraining.in

For Pre Sea Training Courses kindly contact **Anglo-Eastern Maritime Academy** (A Division of Anglo-Eastern Institute) **DNS Course** : 011 6817 0837 | **GME / ETO Course** : 011 6817 0831 | aema.edu.in

Man Energy Solution is now MAN | PrimeServ Everllence

## Everllence | PrimeServ Academy Partner, Mumbai
(OEM Approved Courses)


**ME-C Control System Standard Operation**

Mar 2026: 16 - 20


**ME-GI Control System Standard Operation**

Mar 2026: 02-06 , 23-27 | 27 Apr 2026 - 01 May 2026

For bookings: aetr.bom@angloeastern.com | primeserv.academy-cph@everllence.com

## WIN GD
(OEM Approved Course)

Operation Advanced Course UNIC-Controlled X-DF Engines — Mar 2026: 09 - 13

Operation Advanced Course WECS 9520 Controlled X Engines — Apr 2026: 06 - 10


For bookings: +91 8657408962 / +91 9820917656

WÄRTSILÄ

## Wartsila RT Flex Engine
Conducted by Wartsila Switzerland

Mar 2026 : 23 - 27

Apr 2026 : 20 - 24


## VACANCY Faculty position

Apply Now!
talentsourcing@angloeastern.com/
aemt.bom@angloeastern.com

### Training Faculty – Engineering

**Qualifications and Experience**

- Marine Engineer Officer Class 1 – COC from India / UK
- With min. 1 year rank experience as Chief Engineer (Preference for experience on LNG/ LPG/ Tanker vessels)
- Experience in Ship operation, ship repair, teaching, auditing, inspections preferred.
- Training for Trainers and Assessors (TOTA) or Vertical Integration Course for Trainers (VICT).
- Other ISO / ISM / Technical Value-added courses.
- Excellent verbal and written communication skills. Should be interested in modern teaching methodologies.
- Candidate must have a passion for learning continuously and a desire to be in the teaching profession.
- Proficient in use of computers and savvy with use of various software.

# Kolkata Branch Hosts 50th Annual Contributory Meet

The 50th Annual Contributory Dinner Meet of the Kolkata Branch was held on 21st February 2026 at the Princeton Club. The event brought together members of the Institute, the marine fraternity, sponsors and their families for an enjoyable evening of fellowship and celebration.

The gathering provided an excellent opportunity for members to interact and strengthen professional and personal connections in a warm and friendly atmosphere. A highlight of the programme was the distribution of prizes for souvenir lucky numbers which created excitement and engagement among the attendees.

On this special occasion senior member **Shri Alok Kumar Sarkar** was felicitated in recognition of his association and contributions. The felicitation was warmly appreciated by all present.

The evening concluded on a cheerful note with members expressing their appreciation for the well organised programme. The Kolkata Branch extended its sincere thanks to all sponsors supporters and members who attended and contributed to making the event a memorable and successful one.

HIMT College

# Calling all Mechanical Engineers

IMEC

## Opportunity to transition into Merchant Navy with Pre-Course Placement

# IMEC Indian Cadet Graduate Marine Engineering (GME) Program

## Eligibility:

- Mechanical Engg. Degree Aggregate - Above 60%
- English - Above 65% in 12th Std

## Max. Age:

24 years as of 31st March 2026

**Course Commencement**
**Sept 2026**

**Duration**
**1 Year**

## APPLICATIONS OPEN

Candidates presently in their 8th Semester can also apply, but subject to getting aggregate 60% and producing all Semester mark sheets.

**Guaranteed Pre-Course Placement for Students selected by IMEC Member Companies**

**Our cadets have been placed in following IMEC Member Companies**

BSM Bernhard Schulte Shipmanagement
Synergy Group
Zodiac Maritime
V.Ships
WALLEM
BERGE
unix
ASP SHIPS GROUP
WE MANAGE SHIPS SAFELY
COLUMBIA SHIPMANAGEMENT
WESTERN SHIPPING
SIRIUS

**TO APPLY & FIND OUT MORE**

Please email to
Admission@himtcollege.com

Contact us on
+91 9840498000

Website
www.himtcollege.com

Scan for more details

# Maritime Leaders Converge at IME(I) Annual Technical Seminar and Get-Together 2026

The Institute of Marine Engineers (India) Mumbai Branch, along with its Navi Mumbai and Gujarat Chapters, successfully hosted its Annual Technical Seminar and Annual Dinner on 27th February 2026 at the MCA Club, BKC, Mumbai. The event brought together leading professionals from the maritime and shipping industry for a day of insightful discussions, knowledge exchange and networking.

The seminar was graced by senior officials from the Directorate General of Shipping and featured expert technical presentations addressing key developments in the maritime sector. The programme culminated in an engaging panel discussion titled *"Compliance Without Complexity: How Smart Performance Monitoring Is Changing the Shipping Industry."*

The panel discussion featured distinguished representatives from leading maritime organisations including StormGeo, Danelec, The Great Eastern Shipping Company, Shipping Corporation of India and Anglo-Eastern Maritime Services. The panellists shared valuable insights on emerging technologies and performance monitoring solutions that are shaping the future of the shipping industry.

The seminar was presided over by the President of IME(I), **Shri Kaushik Seal,** in the presence of **Shri Sanjeev V. Mehra**, Honorary Chairman of IME(I) Mumbai Branch and Managing Director of Kenmark Tech Solutions, who emphasised the importance of collaboration between regulators, technology providers and ship operators to ensure efficient and transparent compliance systems. **Ms. Archana Sangal** served as the Master of Ceremony, outlining the agenda for the day and setting the stage for a series of informative sessions. Presentations covered a wide range of topics including the five new maritime Acts passed in Parliament, developments in ship recycling, shipbuilding initiatives and financial assistance schemes supporting the shipbuilding sector.

Expert presentations were delivered by eminent speakers including **Shri Pradeep Sudhakar K.,** Chief Ship Surveyor and Joint Director General (Technical); **Shri Ash Mohomad,** Deputy Director General of Shipping; **Ms. Ritu Chaudhri,** Director, Enmarol Petroleum India Private Limited; **Shri Gopikrishna Chockalingam,** Engineer & Ship Surveyor-cum-Deputy Director General (Tech.); **Shri Ankur Anal,** Junior Ship Surveyor-cum-ADG (Tech.), DG Shipping; **Mr. Petter Andersen,** Vice

President Shipping, StormGeo; **Mr. Antoni Therattil,** General Manager (Operations) – MENA & APAC, StormGeo; **Mr. Espen Martinsen,** Chief Commercial Officer, StormGeo; **Mr. Ankeet Shetty,** Sales Manager, Danelec, a GTT Group Company; **Mr. Sudipto Mukherjee,** Assistant Vice President – Head Technical, The Great Eastern Shipping Co. Ltd.; **Mr. Anupam Gangrade,** Senior Manager – Sustainability and Performance Services, Anglo- Eastern Maritime Services and **Shri Shishir Kumar,** General Manager (OS), Shipping Corporation of India Ltd.

During the programme, the Omkanath & Chunni Wazir Awards were presented to **Mr. Naresh Nanda,** Senior Fellow Member of IME(I), in recognition of his outstanding contributions to the academic field. The event also witnessed the signing of a Memorandum of Understanding (MoU) between IME(I) and the Indian Maritime University, Navi Mumbai Campus for conducting practical training programmes for IGF students in the presence of **Dr. Malini V**

**Shankar (IAS),** Vice Chancellor, IMU; **Capt. Mihir Chandra,** Director, IMU Navi Mumbai Campus; **Shri Kaushik Seal,** President, IME(I); **Shri Vivek Diwakar Prasad,** Hon. General Secretary, IME(I) and **Shri Mohan Singh Pal,** Director, MET, IME(I).

The event was also attended by office Bearers of IME(I), including **Shri Chitta Dash,** Chairman, Navi Mumbai Chapter; **Shri Puru Bakshi,** Treasurer, Gujarat Chapter; **Shri Sunayan Sanatani,** Honorary Secretary, IME(I) Mumbai Branch; **Shri Lokanath Tripathi,** Treasurer, IME(I) Mumbai Branch and Executive Committee Members of IME(I) Mumbai Branch, namely **Shri P. Lakshman, Shri Bikram Jena, Ms. Sonali Banerjee** and **Capt. Dr. Bhaskar Bhandarkar (Retd.)**

The seminar concluded with a vote of thanks delivered by Shri Sanatani, followed by the presentation of mementoes to the Guests of Honour and speakers in appreciation of their valuable contributions.

## Annual Get-Together and Dinner

Following the technical sessions, the evening concluded with a gala dinner jointly hosted by the Mumbai Branch, Navi Mumbai and Gujarat Chapters of IME(I). The gathering provided an excellent platform for industry professionals to interact and strengthen professional ties.

Mr. Mehra, welcomed the distinguished guests, office bearers, Executive Committee Members and representatives of the Governing Council of IME(I). In his remarks, he expressed appreciation for the strong participation and highlighted the importance of continued collaboration within the maritime community.

The event was graced by several distinguished dignitaries including **Shri Shyam Jagannathan, IAS**, Director General of Shipping; **Capt. B. K. Tyagi**, Chairman and Managing Director of the Shipping Corporation of India Ltd.; **Ms. Monica Ommundsen Nagelgaard**, Consul General of Norway and **Shri P. K. Mishra**, Managing Director of the Indian Register of Shipping.

The IME(I) Annual Dinner provided an excellent opportunity for marine engineers and maritime leaders to connect, exchange perspectives and celebrate the achievements of the industry. Marked by camaraderie and a shared commitment to advancing the maritime sector, the evening proved to be a memorable and enriching occasion for all participants.

# Glimpses of the Event










Landscape 2030
2026



THE MOST PROMISING
MARITIME TRAINING INSTITUTE

RANKED GRADE A1
(OUTSTANDING)

# D. G. Shipping
# Approved Course

**Basic Training for Ships using Fuels covered within IGF code Course Id – 5311**

**Course Dates: 13th April 2026/ 20th April 2026 / 4th May 2026 /18th May 2026 / 1st June 2026 / 22nd June 2026**

**5 Days**

**COURSE FEE RS. 15550/-**

**For Booking, visit: https://imare.in/**

For any queries:


training@imare.in  022 2770 1664 & 27711663

8454847896

IMEI HOUSE, Plot No.94, Sec-19, Nerul,
Navi Mumbai – 400 706


**Visit: https://imare.in/**


StormGeo


StormGeo
StormGeo


ANNUAL DINNER 2026


THE INSTITUTE OF MARINE ENGINEERS (INDIA)
ANNUAL MEET 2025
ENMAROL
StormGeo
HSBC
B&M


THE INSTITUTE OF MARINE ENGINEERS (INDIA)
StormGeo
ENMAROL
B&M
HSBC








# THE INSTITUTE OF MARINE ENGINEERS (INDIA)

## KOLKATA BRANCH

MTI NO. 307030
31/3, Sahapur Colony, Flat No. A-1/2, New Alipore, Kolkata-700053
Tel. (M) : +91 8697430058/9831636004
E-mail: principalkolkata@imare.in/ enquirymetckol@imare.in

**RANKED A1 (OUTSTANDING)**

## Course Fee & Schedule for DGS Approved Courses at IMEI, Kolkata Branch

| Sl. No. | Name of the course | Course Fee | Course Duration | Schedule |
|---|---|---|---|---|
| 1. | Basic Training for Ships using Fuels covered within IGF Code (IGFB) | Rs.10,000 /- (including lunch & one-time Exit Examination fees) | 5 days | 6th April - 10th April, 2026/ 4th May - 8th May, 2026/ 1st June - 5th June, 2026/ 6th July -10th July, 2026/ 3rd August- 7th August, 2026 |
| 2. | Crowd management, Passenger Safety and Safety Training | Rs. 3,500 /- (including lunch & one-time Exit Examination fees) | 3 days | 13th April- 15th April, 2026/ 11th May - 13th May, 2026/ 8th June -10th June, 2026/ 13th July - 15th July, 2026/ 10th August- 12th August, 2026 |
| 3. | Crisis Management & Human Behaviour | Rs. 8,000 /- (including lunch & one-time Exit Examination fees) | 5 days | 20th April- 24th April, 2026/ 18th May -22nd May, 2026/ 15th June -19th June, 2026/ 20th July -24th July, 2026/ 17th August- 21st August, 2026 |
| 4. | Security Training for Seafarer with Designated Security Duties (STSDSD) | Rs. 2,000 /- (including lunch & one-time Exit Examination fees) | 2 days | 27th April- 28th April, 2026/ 25th May - 26th May, 2026/ 22nd June - 23rd June, 2026/ 27th July -28th July, 2026/ 24th August - 25th August, 2026 |
| 5. | Ship Security Officer (SSO) | Rs. 2,500 /- (including lunch & one-time Exit Examination fees) | 3 days | 29th April- 1st May, 2026/ 27th May - 29th May, 2026/ 24th June -26th June, 2026/ 29th July -31st July, 2026/ 26th August - 28th August, 2026 |

- Rs. 50/- for DGS Fee for issuance of certificate
- If more candidates are available, we can schedule a special batch as and when required.
- Special Discount may be available for block booking.

***Note: Dates are subject to change***

# 19th edition of "Transtech 2026"


The 19th edition of the All-India Technical Seminar "Transtech 2026" was organized by Tolani Maritime Institute (TMI), Pune & The Institute of Marine Engineers (India), Student Chapter, TMI, Pune in association with The Institute of Marine Engineers (India), Pune Branch & The Institution of Engineers (India), Pune Local Centre from 10th to 12th March 2026, at TMI Campus.

The technical carnival of Tolani Maritime Institute "Transtech 2026" portraying this year's theme, **"Maritime 5.0: Reimaging Ocean Tech for a Resilient Future"** began on 10th March 2026 with the arrival of the Chief Guest, **Mr. Ravikant Yamarthy,** CEO, Logistic Sector Skill Council, Chennai, the Guest Speaker, **Mr. Shailendra Goswami,** Chairman and Managing Director, Pushkaraj Group, Pune and the Chairman of The Institute of Marine Engineers (IMEI), Pune Branch, **Mr. Girish Kotwal** and Vice Chairman **Mr. Sanjeev Ogale** followed by the lamp lighting ceremony and the Vandana of goddess Saraswati.

The TMI Principal, **Dr. Sanjeet Kanungo** shared his feelings in his welcome address and introduced Transtech 2026 as the official platform for the professionals of tomorrow from Maritime Training Institutes and Engineering Colleges across India to showcase their talent and churn out new ideas for the future of the maritime sector. This was followed by the address of Mr. Kotwal and **Mr. Abhijit Kadam,** Faculty in Charge, Institute of Marine Engineers (I), Student Chapter, TMI Pune.

**Dr. Dhiren Dave,** convenor for Transtech 2026, made his curtain raiser speech.

The inaugural function was also graced by the guest speaker; Mr. Goswami, who spoke on "*Learnings from Supplying Main Propulsion Plants for Warships & Patrol Vessels*."

Mr. Yamarthy, released 'Transtech-2026 - Book of Proceedings and Tolani Maritime Institute' s Journal of Maritime Fundamental and Applied Research followed by his Inaugural speech. The inaugural session was concluded with the vote of thanks by the Vice- Principal, Marine Engineering, Mr. Kumar.

The inaugural session was followed by Technical Paper presentations conducted in presence of the Judges **Mr. Anand Thakoor, Mr. Anil Bhat, Capt. Kiran Joshi** in five sessions with the session chairs **Mr. Kailash Mehendale** and **Dr. Mithul Naidu,** from TMI, wherein 7 papers were presented on various topics by the participants.

Day 2 of Transtech 2026 was equally eventful and energetic. There were two guest speakers who made very informative presentations. The first guest speaker was **Dr. V Vijay Kumar,** Director, Gujarat Institute of Desert

# Support Transition to Zero-Emission

The shift toward a zero-emission society has accelerated in various fields, with governments making their GHG targets more ambitious and sustainable finance gaining more attention. Likewise, the time has come for the maritime industry to systematically manage the GHG emissions from shipping, as represented by the introduction of a GHG emissions evaluation framework into international shipping.

ClassNK provides Zero-Emission Transition Support Services, a comprehensive menu of services to support customers in dealing with the various challenges they may encounter when managing GHG emissions in pursuit of zero-emission shipping.

ClassNK CHARTING THE FUTURE

www.classnk.com

Ecology. He presented a lecture on the "Climate *Change – Maritime Challenges and Management*". The second guest speaker was **Mr. Tejas Ingale,** Owner, Chief Marketing Officer, Technical Coordinator and Liaison Officer, Injotech India Pvt. Ltd., Pune. He presented a very energetic and enlightening talk on "Seeing the Unseen - An Introduction to Non- Destructive Examination." Following this, Vice Principal Nautical Studies, **Capt. Indranth Banerjee** presented vote of thanks.

Three paper presentation sessions were conducted in parallel at Seminar Hall on Day 2. First session was chaired by Mr. Mehendale, second session was chaired by **Dr. Ajaj Attar** and third session was chaired by **Mr. Sachin Vyavahare.** A total of fourteen papers were presented on various topics by the participants on day 2.

The much-awaited event, Marine Quiz was conducted at Auditorium in post lunch session on Day 2. A total of twelve teams from various maritime training institutes like Tolani Maritime Institute (TMI), Samundra Institute of Maritime Studies (SIMS), Ganpat University, Noorul Islam Centre For Higher Education, Maharashtra Academy of Naval Education and Training (MANET), IMU Mumbai campus, Anglo Eastern Maritime Academy (AEMA), IMU Chennai etc., participated.

The final day of Transtech 26 was the valedictory function. The event began with the welcoming speech by Dr. Kanungo, followed by a very informative talk by the Guest speaker **Mr. Prateek Tiwary,** Faculty in Marine Engineering, TMI. Mr. Prateek Tiwary, talked on "Future Fuel Pathways Under a Delayed Net-Zero Framework" while the chief guest, **Capt. Yogesh Agarwal,** Managing Director, Yankalfa India Pvt. Ltd. Noida, spoke on "From Command at Sea to Global Industrial Leadership". This was followed by speech of **Dr. Manoj Kumar Kar** who presented the conference summary.

Finally, the much-awaited Prize Distribution function was held in which all the winners were awarded certificates and Cash Prizes. The Transtech 2026 Theme Poster prize was won by Cdt. Anshul Kushwaha. Cdt. Anshul Kushwaha also won the Transtech Video Making Competition. The winners of the very popular Marine Quiz competition were Cdt. Garvita Bakshi and Cdt. Vasu Raturi from Tolani Maritime Institute, followed by Cdt. Abhinav Kumar and Cdt. Dhruv Mangal from TMI, Pune, in second place and Cdt. Umesh Shinde and Cdt. Vikas Phadtare from the Ganapat University, Gujarat, secured the third position.

A total of 22 entries were registered for the Model-Making Competition. The models were judged by Mr. Arvind Kumar, Mr. Ajit Shelar and Mr. Tejas Ingale. The alumni association of TMI, TMIAN, also instituted awards for model making in two categories i.e. three awards exclusively for TMI cadets and an award for cadets from other institutions. The judges for TMIAN model awards were Mr. Shireesh Aghicha, Mr. Gaurav Kapahi, and Mr. Karun Mehera.

The winners of the Transtech 26 Model Making Competition were Cdt. Mohit Kumar, Cdt. Priyambakam Soni and Cdt. Nabh Sharma from Anglo Eastern Maritime Academy (AEMA) with their model on "ACELTRAK NAV

SYSTEM." This was followed by models from another team of AEMA, at second and team from TMI at third position.

The prize for TMIAN model making award for TMI cadets, went to Cdts Bhavishya Bhagia, Dhruv Kumar Mangal, Adarsh Kumar and Karthikeya for their model titled "SailorGPT- AI in Maritime Education" from TMI. The TMIAN model making award for models from other institutions went to Cdt. Mohit Kumar, Cdt. Priyambakam Soni, Cdt. Nabh Sharma for their model entitled "ACELTRAK NAV SYSTEM" from AEMA.

Out of the 12 potential entries, the winners of the Poster Making Competition were Cdt. Rasel Hossain, Cdt. Rishav Gupta and Cdt. Parekh Hemang Chetanbhai from IMU Chennai for their poster on, "Transitioning to Net Zero: A State-of-the-Art Outlook on Ammonia Combustion in Marine Engines".

The Guest of Honour Mr. Ashish Matta, Principal Surveyor & Manager, Class NK, also awarded the cash prizes and certificates, instituted by Class NK for model makers of TMI.

The first prize went to Cdts. Manas Kapoor and Ved Vinon Menon for their model titled "Automated Anti-Piracy Water Hose Defender". The second prize went to Cdts. Soham Das Barman, Upamanyu Chowdhury, Ritwan Ghosal and Bitan Sarkar for their model titled "Voice Controlled Automation System for Home and Industries". The third prize went to Cdts. Dhruv Katiyar, Harsh Rai, Bhavishya Bhagia and Dhruv Kumar Mangal for their model titled "Safety Mechanism with GPS and Sensors for Overboard Fall Detection Using ESP32 and IoT".

The Institute of Marine Engineers (IMEI), Pune Branch, have sponsored First, Second and Third prizes for papers (Rs. 10,000, Rs. 6,000 and Rs. 4,000) as well as First and Second prizes for Model making (Rs. 6,000 and Rs. 4,000). The rest of the prizes were awarded by TMI.

The technical paper presentation, being the highlight of the event, had its top three technical papers in the following order: the third place was secured by Cdt. Vibhuthi Duggal from IMU Navi-Mumbai, for their paper titled, " The Human Element at Sea: A Critical Analysis of Seafarer Welfare". The second place was taken by Cdts. ShreeOshee Kumari and Naina Diwakar from TMI, for the paper titled, "Multiple Injection Strategies for NOx reduction in a low speed two-stroke marine diesel engine". The winner of the paper presentation competition were Cdts Siddarth Krishnakumar Nair, Ramesh Ramani and Ravikumar Kolli from AEMA, for their paper titled, "Predictive Fault Detection for Shipboard Systems Using Machine Learning."

The valedictory session was concluded with the vote of thanks by Sr. Vice-Principal, Capt. Manoj Hirkane.

# The Marine Engineer's Role in Validating AI-Driven Decisions

The IME(I) Visakhapatnam Branch organised a Technical Meeting on 6th March 2026 at the Seminar Hall of the Marine Engineering Department, A.U. College of Engineering, Andhra University. The session focused on the topic *"The Marine Engineer's Role in Validating AI-Driven Decisions."*

The talk was delivered by **Dr. Giri Rajasekhar Gunnu**, Professor of Practice, Department of Marine Engineering, A.U. College of Engineering. Through an engaging presentation, Dr. Gunnu highlighted the growing importance of Artificial Intelligence (AI) in the maritime industry and emphasised the critical role of marine engineers in validating AI-driven decisions to ensure safety, reliability and operational efficiency in modern shipping.

The lecture was highly informative and insightful, offering valuable perspectives on the integration of advanced technologies in marine operations. Members of the institute, faculty and students actively participated in the session and engaged in a lively interaction with the speaker.

The programme was attended by **Dr. D. S. Anand,** Chairman, IME(I) Vizag branch along with several members of the Institute of Marine Engineers, faculty members and students of the Marine Engineering Department.

As a mark of appreciation, Dr. Gunnu was felicitated by Dr. Anand, **Dr. V. V. S. Prasad**, Vice-Chairman, **Shri V. Lakshmipati Rao**, Secretary, **Shri Sravan Kumar**, Treasurer, **Shri Amara Vijayananda Kumar**, Exec. Committee Member all from IME(I) Vizag branch and other senior marine engineers.

The meeting concluded with the National Anthem.

# In Appreciation of Years of Valuable Service

The Institute of Marine Engineers (India) marks a significant moment with the retirement of its esteemed Deputy Director, MET, **Mr. Vikram Gokhale,** on 10th March 2026. His departure concludes a distinguished association of over a decade with the Institute, during which he made noteworthy contributions across multiple functional areas.

Mr. Gokhale played a pivotal role in strengthening various segments of IME(I), including academic courses, simulator operations and sub-committee engagements. His dedication, professionalism and in-depth understanding of maritime education and training greatly contributed to the efficiency and growth of the institute. On the occasion of his retirement, a small gathering was organised in the presence of IME(I) President **Mr. Kaushik Seal,** Director-MET, **Mr. Mohan Singh Pal,** faculty members and staff. During the interaction, colleagues shared their experiences and expressed their appreciation for Mr. Gokhale's guidance, leadership and supportive nature. The occasion was marked by heartfelt words, reflecting the positive impact he had on the institution and its people.

# Update from IMO – STCW Review


## Outcomes of HTW 12 and ISWG-STCW 2

I had the privilege of attending the 12th session of the IMO Sub-Committee on Human Element, Training and Watchkeeping (HTW 12) at the International Maritime Organization headquarters in London as part of the Indian Delegation nominated by the Directorate General of Shipping, Government of India.

During the course, I had the opportunity to author 5 technical submissions and make 11 interventions on the floor, contributing particularly to discussions related to various competencies, environmental technologies and the evolving training requirements for seafarers.

HTW 12 was held from 23rd – 27th February 2026, followed immediately by the Second Intersessional Working Group on the Comprehensive Review of the STCW Convention and Code (ISWG-STCW 2) from 2–6 March 2026.

Officers from the Ministry of Ports, Shipping and Waterways and the Directorate General of Shipping, along with representatives from leading maritime institutions, represented India at the 12th Session of the HTW held at IMO Headquarters, London, from 23rd to 27th February 2026, contributing actively towards global maritime standards and safety.

## Delegation Details

| Name | Position | Organization |
|---|---|---|
| Shri Praveen Nair | Deputy Chief Ship Surveyor | Directorate General of Shipping |
| Capt. Ravi Singh Sikarwar | Nautical Surveyor-cum-DDG | Directorate General of Shipping |
| Shri Deependra Singh Bisen | Deputy Director General | Directorate General of Shipping |
| Capt. Harish Khattri | Member | Board of Examination for Seafarers |
| Capt. Mahesh Chandra Yadav | Director (Training) | FOSMA Maritime Institute & Research Organization |
| Capt. Shivanandan Madhav Halbe | Chief Executive Officer | MASSA |
| Capt. Mahendra Pal Bhasin | Chairman | Company of Master Mariners of India |
| Capt. Philip Mathews | Director | Seven Islands Maritime Training Foundation |
| Mr. Sunil Kumar | Fellow | Institute of Marine Engineers (India) |
| Capt. Chhote Lal Dubey | Warden | Company of Master Mariners of India |
| Capt. Pankaj Sarin | Warden | Company of Master Mariners of India |

THE MOST PROMISING MARITIME TRAINING INSTITUTE


# THE INSTITUTE OF MARINE ENGINEERS (INDIA)

IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai – 400 706

Email: training@imare.in Website: www.imare.in

Phone no: +91 22 – 27711663 / 27701664, Mobile No: +91 8454847896


RANKED GRADE A1 (OUTSTANDING)

D. G. Shipping Approved Course

10 Days

## Course Id - 5122

## Advanced Training for Liquefied Gas Tanker Cargo Operations

**Entry Criteria:**

A Seafarer should hold minimum a Certificate of Proficiency as Rating in charge of a Navigational /engineering watch or Completed sea time required for appearing for a Certificate of Competency Examination.

Officers are required to hold a Certificate of Competency and a Certificate of Proficiency for Basic Training for Liquefied Gas Tanker Cargo Operations and at least three months of approved sea going service on Liquefied Gas Tankers within the last sixty months on liquefied gas tankers, or at least one Month of approved onboard training on Liquefied Gas Tankers in a Supernumerary capacity, which includes at least three loading and three Unloading operations and is documented in an approved training record book as specified in section B-V/1 of the STCW Code.


**Course Date: 13th April – 23rd April 2026**

**For registration, Visit: https://imare.in/**

FOR MORE INFORMATION please email to training@imare.in or
**contact on M: 8454847896/ 022 2770 1664 & 27711663**

## Where STCW review stands today

STCW review is progressing in phases. The initial phase focused on identifying gaps in the current Convention and Code. The present phase involves drafting amendments to address those gaps. The work will continue through multiple sessions with the aim of concluding the review by around 2029.

The outcome of this process will effectively define global maritime competency standards for the next generation of ships and seafarers.

## Alternative fuels – cautious progress

One of the topics discussed extensively during HTW 12 was training related to ships using alternative fuels such as methanol and ammonia. Interim training guidelines for these fuels were finalised during the session and will be forwarded to the Maritime Safety Committee for approval.

At the same time, the discussions clearly reflected a measured and cautious approach among many Member States.

Several administrations, including major maritime countries such as the United States, emphasised that training requirements must evolve only alongside the development of technical regulations, safety standards and real operational experience with these fuels.

A clear takeaway from the room was that while the industry is committed to decarbonisation, many administrations are equally conscious that regulation must follow operational maturity, not run ahead of it.

Indian delegation supported this balanced and pragmatic approach, emphasising that training frameworks should remain practical for shipowners and maritime training institutions while maintaining high safety standards.

Accordingly, the IMO has adopted a phased work plan extending to around 2029, under which training requirements for emerging propulsion technologies will be developed progressively as the technology itself matures.

## Competence beyond technical

Another important theme that emerged during the meetings was that safe ship operations require more than technical expertise alone.

The working group agreed to incorporate additional knowledge elements related to:

- mental health awareness
- psychological safety
- gender and cultural diversity.

These will be introduced primarily within management-level competencies, recognising the role of senior officers in maintaining a safe and professional shipboard environment.

Closely linked to this was the discussion on violence and harassment at sea, including bullying and sexual harassment. Instead of creating entirely new competencies, these topics will be incorporated within existing competencies dealing with leadership and teamwork.

## Cyber security enters the competency framework

Cyber security was another topic that generated extensive debate.

Modern ships rely heavily on digital systems — from navigation and propulsion to communications and cargo management — which inevitably introduces new risks.

After detailed discussions it was agreed that cyber security awareness should become a competency for operational-level officers, while detailed cyber risk management should remain primarily within company safety management systems under the ISM Code.

Interestingly, several delegations cautioned that seafarers should not be expected to become cyber

THE MOST PROMISING
MARITIME TRAINING INSTITUTE

RANKED GRADE A1
(OUTSTANDING)

# D. G. Shipping
# Approved Course

**Advanced Training for Ships using Fuels covered within IGF code Course Id – 5312**

**Course Dates:**
**7th April 2026/ 12th May 2026/**
**9th June 2026**

**5 Days**

**COURSE FEE**
**RS. 21550/-**

**For Booking, visit: https://imare.in/**

For any queries:


training@imare.in  022 2770 1664 & 27711663

8454847896

IMEI HOUSE, Plot No.94, Sec-19, Nerul,
Navi Mumbai – 400 706


**Visit: https://imare.in/**

specialists — the focus should remain on awareness and good operational judgement.

## Environmental technologies becoming routine (BWTS)

Environmental compliance technologies were another focus area.

In particular, the working group discussed how *Ballast Water Management Systems* should be reflected in STCW training requirements.

The group agreed that officers should possess basic knowledge of ballast water management requirements and system operation, while recognising that detailed operational procedures are already covered through onboard manuals and equipment-specific training.

This reflects the broader trend of integrating environmental awareness into everyday ship operations.

## Sea time and simulators – a debate that will continue

The meetings also examined whether simulator training could replace a small portion of sea service required for certification.

Current discussions suggest that up to three months of sea time may eventually be substituted by approved simulator training, provided strict safeguards are maintained.

However, there was clear agreement that core watchkeeping experience at sea cannot be replaced by simulators.

Further work on simulator standards will continue at the next HTW session.

## What this means for the industry

Even though many of these proposals are still evolving, the direction of travel is now becoming visible.

Future seafarers will increasingly need to combine:

- strong technical competence
- familiarity with environmental technologies
- basic digital and cyber awareness
- leadership and people-management capability.

For countries like India, with a large seafarer base, the real challenge will be ensuring that the training ecosystem evolves at the same pace as the ships themselves.


## Key points:

- STCW is undergoing its largest review in over a decade, expected to conclude around 2029.
- Training frameworks for alternative fuel vessels are being developed cautiously and in phases.
- Several Member States, including the United States, emphasised that regulatory changes must follow operational experience and safety standards.
- Cyber security awareness will become part of officer competency requirements.
- Leadership, crew welfare and professional conduct are receiving greater emphasis within STCW competencies.
- Officers will increasingly require familiarity with environmental compliance technologies such as ballast water management systems.
- IMO is exploring limited use of simulator training to offset part of sea-time requirements.

**About the Author**

**Sunil Kumar** is a seasoned maritime professional and CTO & Head of Training & Assessment at The Great Eastern Shipping Co. Ltd., with over three decades of experience. He has represented India at International Maritime Organization (IMO) forums, including MSC and HTW and serves as Chief Editor of i-Mélange, IME(I)'s monthly magazine.

WE ARE

# HIRING

**THE INSTITUTE OF MARINE ENGINEERS (INDIA)**

**REQUIRES**

**FULL TIME (ENGINEERING & ELECTRICAL FACULTY)**

## Qualifications & Experience (Engineering Faculty):

- Certificate of Competency as MEO Class I (Motor I Motor & Steam)
- "Training of Trainers & Assessors " (TOTA) / VICT Certificate
- Teaching experience in preparatory courses & Modular Courses

**2. Qualifications & Experience (Electrical Faculty):**

- Certificate of Competency as MEO Class I (Motor / Motor & Steam) / M. Tech (Electrical). Preferably electrical background MEO Class I holders
- "Training of Trainers & Assessors " (TOTA) / VICT Certificate
- Teaching experience in preparatory courses & Modular Courses

**3. Additional Desirable Experience and Skills:**

- TSTA Certificate
- AECS Certificate
- Conversant with computers

In pursuit of excellence in Maritime Education & Training we need dedicated and motivated Full-Time faculty for Competency and Modular courses are being conducted at"IMEI HOUSE" Nerul, Navi Mumbai.

APPLY NOW

Send Your CV To :

training@imare.in
Cc: hgs@imare.in

022 27701664/ 27711663,
M: 8454847896

# Centre Approves ₹797 Crore Green Hydrogen Jetty at Paradip Port

The Ministry of Ports Shipping and Waterways has approved the development of a dedicated jetty with allied infrastructure for handling green hydrogen, ammonia and other liquid cargo at Paradip Port at an estimated cost of ₹797.17 crore. The project will be implemented by Paradip Port Authority on a build operate transfer basis.

The proposed facility will have a handling capacity of 4.0 million tonnes per annum and is expected to significantly strengthen Paradip Port's role as an emerging hub for green energy cargo. The infrastructure will include a dedicated jetty along with storage systems pipelines cargo handling equipment and other supporting facilities required for safe and efficient operations.

Union Minister of Ports Shipping and Waterways **Shri Sarbananda Sonowal** stated that the approval reflects the Government of India's strong commitment to developing future ready green infrastructure under the leadership of Hon'ble Prime Minister **Shri Narendra Modi**.

He noted that the initiative is a direct outcome of the Prime Minister's decisive leadership in positioning India as a global leader in clean energy. He added that under this vision the country's ports are being transformed into important gateways for green growth technological innovation and sustainable logistics.

The jetty will feature a centre to centre distance of 279 metres between the extreme end dolphins and a dredged depth of 14.3 metres in front of the berth to facilitate the safe handling of liquid cargo vessels.

Paradip Port Authority will provide capital support equivalent to 20 percent of the project cost amounting to ₹159.43 crore during the construction phase. The project is expected to be completed within a period of 24 months.

Shri Sonowal highlighted that the dedicated green hydrogen jetty will play a crucial role in strengthening export logistics while connecting Odisha's emerging green hydrogen production clusters with global markets.

He further stated that guided by the vision of an Atmanirbhar and environmentally responsible India the government is developing world class port infrastructure to support the National Green Hydrogen Mission. The project is expected to enhance cargo handling capacity attract investments generate employment opportunities and contribute to the development of a strong green energy ecosystem in eastern India.

The facility will also include provisions for handling other liquid cargo to ensure optimal utilisation of the infrastructure during the initial growth phase of the green hydrogen sector while diversifying Paradip Port's cargo portfolio.

Officials stated that the project aligns with the objectives of the National Green Hydrogen Mission and is expected to encourage investments in green energy infrastructure in

Odisha while strengthening port based logistics for clean energy commodities.

The proposed jetty will incorporate specialised infrastructure and advanced safety systems designed for the safe handling and storage of green energy derivatives and other liquid cargo thereby supporting the development of an integrated green hydrogen ecosystem around Paradip Port.

Officials said the project is aligned with the objectives of the National Green Hydrogen Mission and is expected to support investments in green energy infrastructure in Odisha while strengthening port-based logistics for clean energy commodities.

The proposed jetty will incorporate specialised infrastructure and advanced safety systems for handling and storing green energy derivatives and other liquid cargo, supporting the development of an integrated green hydrogen ecosystem around Paradip Port.

# Goa Coastal State Workshop 2026: Strengthening the Maritime Ecosystem


The Directorate General of Shipping, Ministry of Ports, Shipping and Waterways, Government of India and The Captain of Ports Department, Government of Goa, in collaboration with Elets Technomedia, organised the Goa Coastal State Workshop on 02nd March 2026 at Hotel Novotel, Panaji, Goa. The event was inaugurated by **Shri Shripad Yesso Naik,** Hon'ble Minister of State for Power and New & Renewable Energy, Government of India.

Aligned with the national maritime development frameworks, Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047, the workshop aimed to position Goa as a key contributor to India's growing blue economy and to explore state specific pathways for maritime growth. The event brought together government officials, maritime regulators, training institutions and industry leaders to discuss strategies for strengthening India's maritime ecosystem and identifying opportunities unique to coastal states.

The workshop served as a focused platform for policy dialogue and collaboration between the Centre and the State. Discussions were centred around six strategic pillars that are critical to maritime sector development: Maritime Safety, Shipbuilding & Recycling, Training & Skilling, Crewing & Employment, Sustainability & Decarbonisation and Coastal Shipping & Inland Navigation. These themes reflect the broader national vision of enhancing India's maritime capabilities while ensuring sustainable and inclusive growth of the sector.

During the workshop, **Shri Shivram Kamat**, Director of the Institute of Maritime


Studies, Goa, and Vice Chairman of the Institute of Marine Engineers (India), Goa Branch, delivered a presentation titled "Maritime Training in Goa – Current Scenario, Growth Potentials, Challenges & Strategic Pathways." The presentation highlighted Goa's long-standing maritime heritage, the existing training infrastructure in the state and the important role maritime education plays in supporting India's merchant navy and global shipping industry.

The presentation also addressed key challenges faced by the maritime training sector and outlined strategic measures to strengthen training standards, enhance industry collaboration and expand opportunities for aspiring seafarers from the region.

The dignitaries from DG Shipping presented at the event were: **Capt. Harinder Singh, Nautical Surveyor-cum-Deputy Director General (Tech); Shri Pradeep Sudhakar,** Chief Ship Surveyor; **Shri Praveen Nair**, Deputy Chief Surveyor-cum-Senior DDG (Tech); **Capt. Anish Joseph**, Deputy Nautical Advisor-cum-Senior Deputy Director General (Tech); **Shri Ravi Kumar Moka**, Ship Surveyor-cum-DDG (Tech); **Capt. Nitin Mukesh**, Deputy Nautical Advisor-cum-Senior DDG (Tech); **Shri Satish Kamath**, Deputy Chief Surveyor-cum-Senior DDG (Tech) Also present were (Government of Goa representatives); **Shri Digambar Kamat**, Minister for Captain of Ports, Public Works and Legal Metrology, Government of Goa and **Shri Octavio Rodrigues**, Captain of Ports, Captain of Ports Department, Government of Goa

The Goa Coastal State Workshop thus provided an important platform for dialogue, knowledge sharing and policy alignment, reinforcing Goa's potential to play a meaningful role in India's maritime growth story and the broader vision of a vibrant and sustainable blue economy.

# Government Strengthens Shipbuilding Sector Through Financial Assistance and Development Schemes

The Government of India continues to strengthen the domestic shipbuilding sector through targeted financial support and policy initiatives aimed at enhancing competitiveness, expanding capacity and generating employment.

Under the Shipbuilding Financial Assistance Policy (SBFAP), a total of 288 contracts worth ₹19,748 crore covering 456 vessels have received in principle approval so far. The vessels covered under these approvals include tugs, general cargo vessels, bulk carriers, oil tankers, crane pontoons, heavy deck cargo vessels, RO RO passenger vessels, crew boats, deck loading crafts, coastal research vessels, modular pontoons, passenger catamarans, passenger cum motorcycle ferries, passenger ferries, landing crafts, jack up barges and self-elevating platforms.

So far, financial assistance amounting to ₹620.57 crore has been disbursed to 23 shipyards for the construction and delivery of 204 vessels under the scheme, supporting domestic shipbuilding activity and strengthening the country's maritime capabilities.

In a further step to promote growth in the sector, the Government of India in September 2025 approved the Shipbuilding Development Scheme (SBDS). The scheme provides credit risk coverage to Indian shipyards and viability gap funding in the form of capital assistance to brownfield or existing shipyards to help expand production capacity. The detailed guidelines for the scheme have been issued recently.

Earlier, in 2024, the government conducted a third party assessment of the shipbuilding sector which highlighted the sector's strong employment multiplier of 6.4 and its significant potential to generate both direct and indirect employment. The assessment also identified key challenges affecting the sector's growth including limited domestic demand, high cost of financing and constraints related to capacity and technology.

To address these challenges, the Government of India approved a comprehensive shipbuilding package in September 2025 comprising the Shipbuilding Financial Assistance Scheme (SBFAS), the Maritime Development Fund (MDF) and the Shipbuilding Development Scheme (SBDS). The initiatives aim to strengthen India's shipbuilding ecosystem and enhance the country's global competitiveness in the maritime sector.

This information was provided by **Shri Sarbananda Sonowal,** Union Minister of Ports, Shipping and Waterways, in a written reply to the Lok Sabha.

THE MOST PROMISING MARITIME TRAINING INSTITUTE


**THE INSTITUTE OF MARINE ENGINEERS (INDIA)**

**IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai – 400 706**

Email: training@imare.in Website: https://imare.in/

**Phone no: +91 22 – 27711663 / 27701664, Mobile No: +91 8454847896**


RANKED GRADE A1 (OUTSTANDING)

D. G. Shipping Approved Course

**Course Id - 5113**

10 Day

# Advanced Training for Chemical Tanker Cargo Operations

**Entry Criteria:** The Trainee should holds as a minimum a Certificate of proficiency as Rating in charge of a Navigational /engineering watch OR

1. Completed sea time required for appearing for a Certificate of Competency examination
2. Officers holding Certificate of Competency
3. Holds a Certificate of Proficiency for Basic training for Chemical Tanker cargo Operation
4. Has at least three months of approved sea going service on chemical tankers Within the last sixty months on Chemical tankers, or at least one month of approved onboard training on Chemical tankers on a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book as specified in section B-v/1 of the STCW Code.

| | | |
|---|---|---|
| **Advanced Training for Chemical Tanker Cargo Operation** | **10 days** | **18th May 2026 – 28th May 2026** |

**VENUE: IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai- 400706**

**For Registration, visit: https://imare.in/**

FOR MORE INFORMATION, email to training@imare.in or **contact on**

# Government Engages National Shipping Board to Address Shipping Sector Challenges Amid Global Uncertainty

The Government of India held a highlevel interaction with the National Shipping Board to deliberate on emerging challenges in the country's shipping sector and to review measures aimed at strengthening maritime capacity in the context of evolving global geopolitical and trade dynamics.

The meeting was chaired by the Union Minister for Ports Shipping and Waterways **Shri Sarbananda Sonowal** and brought together members of the National Shipping Board industry leaders maritime stakeholders and senior officials of the ministry. The interaction focused on discussing operational issues policy priorities and strategies required to support the growth and resilience of India's shipping sector.

Addressing the gathering Shri Sonowal said that under the visionary leadership of Hon'ble Prime Minister **Shri Narendra Modi** India is steadily progressing towards becoming a major maritime power. He highlighted that through strategic reforms infrastructure expansion and active collaboration with industry stakeholders the government is unlocking the vast potential of the blue economy while strengthening India's position in global maritime trade.

During the meeting participants discussed several challenges faced by the shipping industry particularly in the backdrop of recent global geopolitical developments supply chain disruptions and increasing operational pressures on maritime trade. The deliberations focused on identifying appropriate policy interventions to strengthen India's shipping ecosystem enhance national fleet capacity and ensure greater resilience in maritime logistics. The Union Minister took note of the concerns raised and directed officials to prepare a comprehensive roadmap to address the issues.

Officials stated that the discussions also aimed at resolving key concerns raised by industry stakeholders while ensuring that policy responses remain aligned with the government's long term maritime development strategy.

The meeting also reviewed progress under major national initiatives including Maritime Amrit Kaal Vision 2047 and Maritime India Vision 2030 which aim to significantly expand port infrastructure increase shipping capacity and position India as a leading global maritime hub.

Emphasising the importance of continuous engagement with industry stakeholders Shri Sonowal underlined the role of the National Shipping Board as an important advisory platform for addressing sectoral issues and guiding policy direction.

The interaction was attended by **Shri Sameer Kumar Khare, IAS,** Retired Chairperson of the National Shipping Board along with other members of the board representatives from the shipping industry and senior officials of the ministry.

The government's engagement with the board comes at a time when global maritime trade is witnessing heightened geopolitical uncertainty and shifting supply chains. Officials noted that the interaction reflects the government's commitment to strengthening India's shipping capabilities ensuring uninterrupted cargo movement and maintaining stability across the maritime sector while addressing industry concerns.

# AMET City College

(Post Sea Training Centre)

AMET, the Pioneer of Maritime Education with 32 + years of existence announces its expansion into the furtherance of Seafarers Career Path through AMET CITY COLLEGE, a Post Sea Training Institution situated at Villivakkam, the heart of the Chennai City.

| S.NO | ID | COURSE | Duriation |
|---|---|---|---|
| **ENGINE ROOM SIMULATOR** | | | |
| 1 | 3241 | Diesel Engine Combustion Gas Simulator MEO Class I | 3 Days |
| 2 | 3221 | Engine Room Simulator - (Management level) MEO Class II | 5 Days |
| 3 | 3121 | Engine Room Simulator - (Operational level) MEO Class IV | 3 Days |
| **NAVIGATION SIMULATOR** | | | |
| 4 | 4211 | Global Maritime Distress Safety System (GMDSS) | 12 Days |
| 5 | 2121 | Radar Observer Simulator - (ROSC) | 10 Days |
| 6 | 2122 | Automatic Radar Plotting Aids - (ARPA) | 5 Days |
| 7 | 2123 | Electronic Chart Display And Information Systems - (ECDIS) | 6 Days |
| 8 | 2221 | Radar And Navigation Simulator (RANSCO) | 6 Days |
| **ADVANCED MODULAR COURSES** | | | |
| 9 | 5312 | Advanced Training for Ships using Fuels covered within IGF code (AIGF) | 5 Days |
| 10 | 5112 | Advanced Training for Oil Tanker Cargo Operations (TASCO) | 10 Days |
| 11 | 5122 | Advanced Training for Gas Tanker Cargo Operations (GASCO) | 10 Days |
| 12 | 5113 | Advanced Training for Chemical Tanker Cargo Operations (CHEMCO) | 10 Days |
| 13 | 1061 | Vertical Integration Course For Trainers - (VICT) | 10 Days |
| 14 | 6421 | Medical Care (MC) | 10 Days |
| **BASIC MODULAR COURSES** | | | |
| 15 | 5311 | Basic Training for Ships using Fuels covered within IGF code - (BIGF) | 4 Days |
| 16 | 3123 | High Voltage Safety And Switch Gear - (Operational Level) | 1 Days |
| 17 | 6101 | Basic Safety Training [ BST= EFA+FPFF+PST+PSSR ] | 12 Days |
| 18 | 6621 | Security Trng. for Seafarer with Designated Security Duties - (STSDSD) | 3 Days |
| 19 | 5121 | Basic Training for Liquified Gas Tanker Cargo Operations (BTLG) | 5 Days |
| 20 | 5111 | Basic Training for Oil and Chemical Tanker Cargo Operations (BTOC) | 7 Days |
| 21 | 5211 | Crowd Management, Passenger Safety & Safety Traning - (PSF) | 3 Days |
| 22 | 6511 | Ship Security Officers - (SSO) | 3 Days |
| 23 | 6411 | Medical First Aid (MFA) | 4 Days |
| **REFRESHER COURSES** | | | |
| 24 | 1118 | Revalidation / Refresher and Updating Training for Engineers and ETO (REO) | 4 Days |
| 25 | 6412 | Refresher Training in Medical First Aid Course (RMFA) | 1 Day |
| 26 | 6122 | Refresher Training for Proficiency in FPFF | Half Day |
| 27 | 6112 | Refresher Training for Proficiency in PST | Half Day |

| COMPETENCY COURSES | | | |
|---|---|---|---|
| 28 | 3231 | MEO Class I | 2 Months |
| 29 | 3211 | MEO Class II | 4 Months |
| 30 | - | MEO Class IV (Value Added) | 2 Months |
| 31 | 2211 | Chief Mate (FG) Phase - I | 3 Months |
| 32 | 2212 | Chief Mate (FG) Phase - II | 3 Months |
| 33 | 2111 | Second Mate (FG) | 4 Months |

## ADMISSION


+91-91760 79666

+91-91760 44766

PRINCIPAL : +91 94449 62378

DIRECTOR : +91 91768 34833 , +91 88258 77750

ametcitycolleggeadmissions@gmail.com

R.R. Towers, 61/54, Jawaharlal Nehru Inner Ring Road (200 Feet Road) Villivakkam, Chennai - 600 049

# Prime Minister Inaugurates Elevated Port Corridor in Guwahati

Hon'ble Prime Minister of India **Shri Narendra Modi,** inaugurated a state of the art elevated road corridor connecting Pandu Port in Guwahati to National Highway 27 and launched multiple inland waterways infrastructure projects in Assam with a total investment of ₹526 crore. The projects aim to strengthen connectivity, tourism, skilling and economic development along the National Waterway 2 on the Brahmaputra River.

During the event, the Prime Minister also laid the foundation stone for a modern cruise terminal at Biswanath Ghat and performed the Bhoomi Pujan for the Regional Centre of Excellence at Bogibeel in Dibrugarh and a cruise terminal at Neamati Ghat. These projects are being implemented by the Inland Waterways Authority of India under the Ministry of Ports, Shipping and Waterways.

Prime Minister emphasised that the development of modern cruise terminals at Neamati Ghat and Biswanath Ghat marks the beginning of a new phase for tourism and economic activity in Assam. He noted that tourism is not limited to sightseeing but has become a significant driver of employment and development. The Prime Minister highlighted that the expansion of water tourism along the Brahmaputra River will make it easier for tourists from India and across the world to reach Assam. As cruise tourism grows, he said, it will generate employment opportunities for local youth and open new markets for artisans and handicraft workers while boosting income for small businesses, boatmen and those associated with hotels and transport services.

The programme was held at the Jyoti Bishnu Auditorium in Guwahati in the presence of **Shri**

Lakshman Prasad Acharya, Governor of Assam, **Shri Himanta Biswa Sarma,** Chief Minister of Assam and **Shri Sarbananda Sonowal,** Union Minister of Ports, Shipping and Waterways, along with other dignitaries.

Prime Minister Shri Modi reiterated the importance of inland waterways as an environment friendly and cost effective mode of transportation for both passengers and cargo. Under his leadership, major investments in terminals, jetties and waterways linked infrastructure are transforming connectivity and livelihoods across the northeastern region while strengthening India's Act East Policy.

The elevated road corridor connecting Pandu Port Complex to National Highway 27 has been developed with an investment of ₹180 crore. The corridor addresses the critical last mile connectivity gap between one of the principal river terminals on National Waterway 2 and the national highway network. Designed to bypass urban congestion in Guwahati, the corridor will provide seamless access to the port, improving operational efficiency and reducing logistics costs.

The cruise terminal at Biswanath Ghat is part of a broader initiative to develop modern cruise infrastructure along the Brahmaputra River. The facility will enhance passenger amenities, support river cruise operations and create new economic opportunities for local communities through tourism, hospitality and handicrafts.

The Regional Centre of Excellence at Bogibeel in Dibrugarh is being developed with an investment of ₹188 crore and will serve as the first maritime skill development hub of its kind in Northeast India. The centre will train more than 5,000 students annually in vessel operations, inland navigation and maritime logistics. It will also house research and development infrastructure to support crew training and maritime education for the growing inland waterways sector.

The cruise terminal at Neamati, which has also been initiated through a Bhoomi Pujan, will further strengthen cruise tourism and organised passenger movement along National Waterway 2. Together, the cruise terminal projects at Biswanath Ghat and Neamati represent a combined investment of ₹158 crore.

Speaking on the occasion, Union Minister Shri Sonowal stated that the projects reflect Prime Minister's vision for a developed and well connected Northeast. He noted that the Brahmaputra River is being transformed into a major economic corridor that supports trade, tourism and logistics while offering an environment friendly mode of transportation.

The four projects together are expected to boost trade, tourism, skill development and employment generation while reducing logistics costs and strengthening regional connectivity along National Waterway 2. The initiatives also support the Government of India's broader vision of transforming the Brahmaputra into a key logistics and tourism corridor for Assam and the entire Northeast region.

# Union Minister Inaugurates Key Inland Waterways Projects on Brahmaputra to Strengthen National Waterway-2

Union Minister of Ports Shipping and Waterways **Shri Sarbananda Sonowal** inaugurated three major inland waterways infrastructure projects in Dibrugarh on National Waterway 2 on the River Brahmaputra, reinforcing the Government of India's efforts to strengthen inland water transport and promote economic development in the Northeast.

The projects inaugurated include the Customs and Immigration Complex at Bogibeel, the Customs and Immigration Complex at Dhubri and the renovated Heritage Building of the Inland Waterways Authority of India at Dibrugarh. The initiative reflects what the Union Minister described as a balanced approach of development and heritage preservation under the leadership of Hon'ble Prime Minister Shri Narendra Modi.

The inauguration programme was held at Chowkidingee Field in Dibrugarh and was attended by Assam Power Minister **Shri Prasanta Phukan,** Public Works Minister **Shri Jogen Mohan,** Industries and Commerce Minister **Shri Bimal Borah**, Member of Parliament **Shri Rameswar Teli** and MLAs **Shri Terash Gowalla, Shri Chakradhar Gogoi, Shri Binod Hazarika, Shri Ponakan Baruah, Shri Taranga Gogoi, Shri Sanjoy Kishan** and **Shri Bhaskar Sharma**. Senior officials including **Shri Vijay Kumar, IAS,** Secretary, Ministry of Ports Shipping and Waterways, and **Shri Sunil Paliwal, IAS,** Chairman of the Inland Waterways Authority of India were also present along with other officials of the Ministry and IWAI.

Addressing the gathering, Shri Sonowal said the projects represent the government's vision of achieving rapid development while preserving the country's cultural and historical heritage.

He stated that under the dynamic leadership of Prime Minister Shri Narendra Modi, the government is moving forward with a clear vision that promotes progress and economic growth while safeguarding India's cultural roots and traditions. He described the Brahmaputra as not only a

THE MOST PROMISING MARITIME TRAINING INSTITUTE


**THE INSTITUTE OF MARINE ENGINEERS (INDIA)**

IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai – 400 706

Email: training@imare.in Website: https://imare.in/

Phone no: +91 22 – 27711663 / 27701664, Mobile No: +91 8454847896


RANKED GRADE A1 (OUTSTANDING)

## D. G. Shipping Approved Course

★ **AECS Course**

**Course Id - 1062**

10 Days

## Assessment, Examination and Certification of Seafarers meets the guidelines provided in the IMO Model Course 3.12

**Entry Criteria: Master (FG) / MEO Class I (FG) / GMDSS (GOC) / ETO COC Holder and TOTA / VICT Holder**

**This Course ensures that the Core publications namely, the STCW Convention and the Code and the Quality Management System is familiarized and well understood by the trainee.**

**This Course also covers the techniques of assessment and developing written tests and conduct of oral and practical assessments**

## Assessment, Examination and Certification of Seafarers

**Dates: 11th-21st May 2026 / 13th July - 23rd July 2026**

**Time: 9am - 5pm**

**Course Fee: Rs.15500/- (per participant inclusive of Taxes)**

**VENUE: IMEI HOUSE, Plot No.94, Sector-19, Nerul, Navi Mumbai- 400706**

For Registration, visit- https://imeimum.marineims.com/course/register

**FOR MORE INFORMATION**, please email to training@imare.in or **contact on Mob: 8454847896 / Tel:-** 022 2770 1664 & 27711663

Or

Visit our Website: https://imare.in/

river but also a lifeline for the people of the region and an important link to the country's economic future.

The Union Minister highlighted that the newly inaugurated infrastructure will strengthen logistics systems, improve passenger connectivity and create new opportunities for trade and tourism across the Northeast region.

The Customs and Immigration Complex at Bogibeel has been developed as part of a modern tourist cum cargo terminal integrating customs immigration and administrative functions of the Inland Waterways Authority of India within a single complex. The facility includes dedicated arrival and departure waiting halls cargo storage areas administrative offices staff amenities and integrated security systems aimed at enhancing operational efficiency along National Waterway 2 and facilitating trade under the Indo Bangladesh Protocol routes.

The Customs and Immigration Complex at Dhubri is designed to enhance regulatory oversight and support export import operations in western Assam. The project is expected to position Dhubri as a strategic gateway for inland water transport and cross border commerce with neighbouring countries including Bangladesh and Bhutan.

The renovated Heritage Building at Dibrugarh combines restoration of its architectural heritage with modernised operational infrastructure. Officials stated that the building will support administrative activities of the Inland Waterways Authority of India on National Waterway 2 while also contributing to river based tourism and preserving the architectural legacy of the region.

Under the National Waterways Act 2016 a total of 20 rivers in the Northeast have been declared National Waterways. Among them the Brahmaputra National Waterway 2 Barak National Waterway 16 Dhansiri National Waterway 31 and

Kopili National Waterway 57 are currently being actively developed to strengthen inland water transport in the region.

Shri Kumar Shri Paliwal highlighted the government's continued efforts to promote inland waterways as an efficient and sustainable mode of transportation while reviving traditional river based connectivity to support trade tourism and regional development. They expressed confidence that the infrastructure being developed on National Waterway 2 will further accelerate economic growth in the Northeast.

The projects are expected to reduce logistics costs improve passenger and cargo movement strengthen cross border trade and reinforce the Brahmaputra's role as a reliable and sustainable economic corridor for the Northeast region.

# V.O. Chidambaranar Port Becomes First Indian Major Port to Implement Digital Twin Technology

V.O. Chidambaranar Port Authority has achieved a significant technological milestone by becoming the first major port in India to implement a Digital Twin platform for port management. The initiative marks a major step toward smart, efficient and technology driven maritime operations.

The Digital Twin platform was inaugurated on 23 February 2026 by **Shri** Sarbananda Sonowal**,** Union Minister of Ports, Shipping and Waterways. The launch represents an important milestone in the port's transformation toward intelligent and data driven maritime management.

The Digital Twin platform will create a real time virtual replica of the port's infrastructure, operational assets and maritime ecosystem. This will enable enhanced operational visibility, predictive analytics and data driven decision making across port operations. By integrating advanced technologies such as IoT sensors, GPS tracking, LiDAR mapping, drone imaging and CCTV networks, the system will continuously mirror real time conditions across the port, allowing efficient coordination among operational departments.

The platform enables real time operational monitoring with live visualisation of berth occupancy, vessel movements, crane utilisation and yard capacity across the port. It also supports predictive maintenance of cargo handling equipment through AI based asset monitoring, helping minimise downtime and improve operational reliability. In addition, the system facilitates berth and traffic optimisation through intelligent vessel scheduling and cargo operation planning, thereby reducing congestion and waiting time.

The platform will also enable energy and emissions tracking to support data driven sustainability management and includes scenario simulation capabilities that allow operators to conduct "what if" modelling to prepare for peak demand situations and operational disruptions.

The initiative is expected to significantly improve port efficiency by reducing vessel turnaround time by up to 25 percent, improving equipment availability and reliability, enhancing operational safety through predictive alerts and optimising energy utilisation to reduce carbon emissions. The project is being implemented in a phased manner and will further strengthen the port's resilience against operational disruptions while enabling more efficient and sustainable port operations.

The Digital Twin initiative aligns with the national maritime development roadmap outlined under Maritime India Vision 2030 and Amrit Kaal Vision 2047, which emphasise digitalisation and technological advancement in the maritime sector to improve operational efficiency, transparency and global competitiveness of Indian ports. Under Maritime India Vision 2030, globally benchmarked targets have been set to enhance ease of doing business and achieve high operational efficiency through technology driven solutions.

Shri Narendra Modi**,** Hon'ble Prime Minister of India, has emphasised the importance of digital transformation in strengthening India's maritime sector and positioning Indian ports among the most efficient in the world.

Speaking on the development, **Shri** Susanta Kumar Purohit**,** Chairperson of V.O. Chidambaranar Port Authority, stated that the implementation of the Digital Twin platform marks an important step in the port's modernisation journey. By leveraging technologies such as artificial intelligence, Internet of Things and real time data analytics, the initiative will enhance operational efficiency, improve vessel turnaround time and strengthen safety and sustainability while aligning the port with global smart port standards.

# THE INSTITUTE OF MARINE ENGINEERS (INDIA), GOA

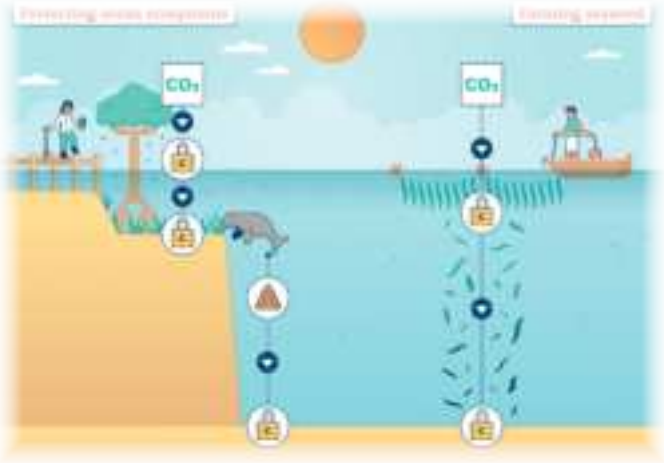
## MTI NO. - 207085

IMEI House, House No.11, Plot No.- D-27, Ranghavi Estate, Post Office, Dabolim, Goa 403 801
Tel: 0832- 2538500, Mobile: 9923102071, E-mail: traininggoa@imare.com

| DG APPROVED MODULAR COURSES | | | | |
|---|---|---|---|---|
| **Sr. No.** | **Course Name** | **Course Fee** | **Course Duration** | **Course Schedule** |
| 1 | Basic Training for Oil and Chemical Tanker Cargo Operations (OCTF) | ₹7,250/- | 6 Days | 21st April, 2026 |
| 2 | Basic Training for Liquefied Gas Tanker Cargo Operations (LGTF) | ₹7,250/- | 5 Days | 29th April, 2026 |
| 3 | Basic Training for Ships using Fuels covered within IGF Code (IGFB) | ₹12,550/- | 5 Days | 1st April, 2026 |
| 4 | Security Training for Seafarers with Designated Security Duties (STSDSD) | ₹4,050/- | 2 Days | 30th March, 2026<br>13th April, 2026 |
| 5 | Ship Security Officer (SSO) | ₹4,950/- | 3 Days | 26th March, 2026<br>16th April, 2026 |

- **Course Fee includes** lunch, two tea breaks, and one examination fee**.**
- 5% discount **on group bookings of more than 6 candidates.**
- 7% discount **on group bookings for** combo courses **(OCTF + LGTF) with more than 6 candidates.**
- *Note:* ***Course dates are subject to change.***

# Carbon Capture Technology as a Possible Reduction in Marine Green House Gas Emission




## Abstract:

The maritime industry plays a vital role in global trade but is also a significant contributor to greenhouse gas emissions. In this context, it is important to examine the current contribution of the maritime sector to global greenhouse gas emissions in order to understand its environmental impact and the urgency of adopting effective mitigation measures. A key area of focus is the analysis of various carbon capture technologies that can be applied to marine vessels, including onboard carbon capture systems, post combustion capture methods, and carbon storage solutions designed specifically for shipboard operations.

Further, it is essential to assess the technical feasibility of integrating carbon capture systems on ships. This involves evaluating several practical considerations such as the additional energy requirements of these systems, the availability of space on vessels for installation, and the operational challenges that may arise during voyages. Understanding these factors is crucial for determining whether such technologies can be implemented effectively within existing maritime infrastructure.

Finally, the environmental benefits of adopting carbon capture technologies in the maritime sector must be evaluated. By reducing carbon dioxide and other greenhouse gas emissions from marine transportation, these technologies have the potential to significantly lower the environmental footprint of global shipping and contribute to international efforts aimed at mitigating climate change.


## Introduction:

Maritime transportation sector is a significant contributor to global greenhouse gas emissions, particularly carbon dioxide ($CO_2$), due to its heavy reliance on fossil fuels. As international trade continues to grow, emissions from ships are expected to increase, creating an urgent need for effective mitigation strategies.

Carbon capture technology offers a potential solution by capturing carbon dioxide produced during the combustion of marine fuels before it is released into the atmosphere. The captured $CO_2$ can then be stored onboard temporarily and later offloaded for permanent storage or further utilization. By preventing large amounts of carbon dioxide from entering the atmosphere, this technology can significantly reduce the environmental impact of maritime operations depicted in Figure 1.

The concept of this study focuses on examining how carbon capture systems can be integrated into marine vessels, evaluating their operational feasibility, efficiency, and potential emission reduction capacity. It also explores the technological processes involved in carbon capture, such as absorption, separation, compression, and storage of $CO_2$.

Furthermore, the paper considers the challenges and opportunities associated with applying carbon capture technology in shipping, including energy requirements, space limitations on ships, economic costs, and infrastructure for $CO_2$ handling and storage. Through this analysis, the study aims to determine whether carbon capture technology can serve as a practical and effective approach to reducing greenhouse gas emissions in the maritime industry while supporting global climate mitigation goals.

## Test Equipment:

i. **Flue Gas Analyzer:** A flue gas analyzer is used to measure the concentration of gases emitted from

# D. G. SHIPPING APPROVED

## REFRESHER & UPDATING TRAINING (RUT – 4 DAYS) COURSE FOR REVALIDATION OF COC FOR ALL ENGINEERS AND ETOs

### DATES

**25th March 2026**

**08th April 2026 / 15th April 2026**
**27th April 2026**

**05th May 2026 / 12th May 2026**
**19th May 2026**

**02nd June 2026 / 15th June 2026**
**24th June 2026**

**07th July 2026 / 14th July 2026**
**22nd July 2026**

**03rd August 2026 / 10th August 2026**
**19th August 2026**

***For more info:***

**Call: +91- 8454847896**
**or mail: training@imare.in**

**https://imare.in**

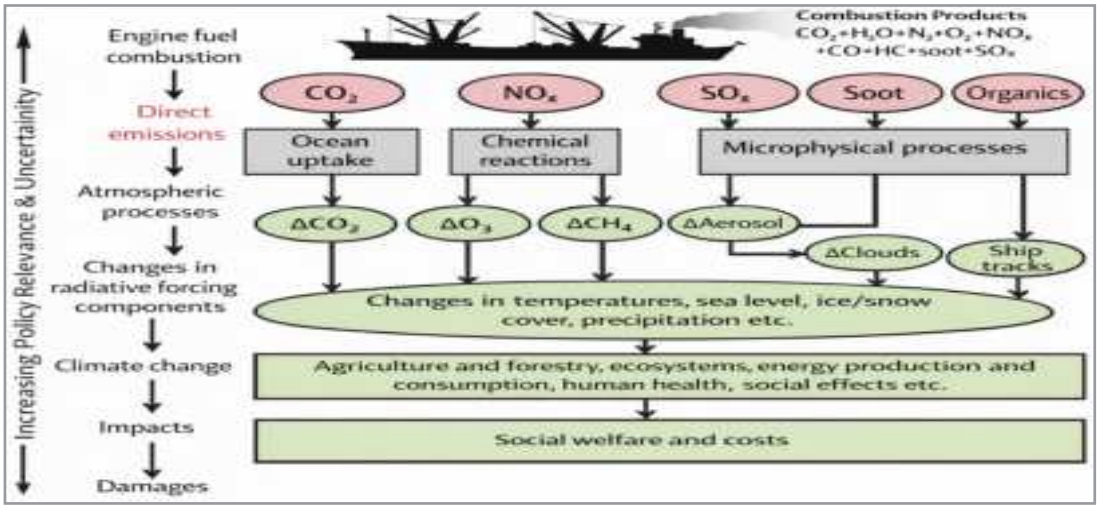



**Figure. 1 Schematic Diagram of the overall Impacts of Emission [Bahaug, et. Al, 2009]**

marine engines, including carbon dioxide ($CO_2$), carbon monoxide (CO), nitrogen oxides (NOx), and oxygen ($O_2$). It helps determine the baseline emissions and evaluate the effectiveness of the carbon capture system.

ii. **$CO_2$ Gas Sensor or $CO_2$ Analyzer:** This device is used to detect and measure the amount of carbon dioxide in exhaust gases before and after the carbon capture process. It is essential for determining the capture efficiency of the system.

iii. **Carbon Capture Unit (Absorption Column or Scrubber):** A laboratory-scale or pilot-scale carbon capture unit, such as an absorption column using chemical solvents (e.g., amine solutions), is used to simulate the capture of $CO_2$ from exhaust gases produced by marine engines.

iv. **Gas Flow Meter:** A gas flow meter measures the rate of exhaust gas flow entering and leaving the carbon capture system. This helps determine the amount of gas processed and the efficiency of $CO_2$ removal.

v. **Pressure Gauges:** Pressure gauges monitor the pressure levels within the carbon capture system and gas pipelines to ensure safe and stable operation during testing.

vi. **Temperature Sensors or Thermocouples:** These instruments measure the temperature of exhaust gases and the carbon capture system, which is important because temperature significantly affects the performance of $CO_2$ absorption processes.

vii. **$CO_2$ Storage Cylinder or Tank:** A storage container is used to collect and temporarily store the captured carbon dioxide for measurement and analysis.

viii. **Data Acquisition System:** A data acquisition system records and stores data from the various sensors and instruments during experiments, allowing detailed analysis of system performance.

ix. **Laboratory Computer with Data Analysis Software:** A computer equipped with data analysis software is used to process experimental results, calculate carbon capture efficiency, and evaluate the effectiveness of the technology.

## Specifications of equipment used for the experiment:

i. Flue Gas Analyzer: The m**easurement gases are** $CO_2$, CO, NOx, $O_2$ with **$CO_2$ measurement range:** 0–20% vol, **CO measurement Range:** 0–10,000 ppm, **NOx measurement Range:** 0–5,000 ppm, **$O_2$ measurement Range:** 0–25% vol. The a**ccuracy:** ±1% of full scale with r**esponse Time:** < 10 seconds and o**perating temperature:** 0–45°C

ii. $CO_2$ Gas Analyzer / Sensor: The m**easurement Principle is based on** Non-Dispersive Infrared with **$CO_2$ measurement range:** 0–20% vol. and a**ccuracy:** ±(2% of reading). The r**esolution:** 0.01% $CO_2$, r**esponse time:** < 5 seconds along with o**perating temperature:** 0–50°C

iii. Carbon Capture Unit (Absorption Column): It is of the type packed absorption column with **Column Height:** 1–2 m, **Column Diameter:** 50–100 mm. The **Packing Material:** Stainless steel or ceramic, solvent **Used:** Monoethanolamine solution (20–30%). The **Operating Pressure:** Atmospheric pressure and **Operating Temperature:** 30–60°C

iv. Gas Flow Meter: The meter type is Digital mass flow with f**low Range:** 0–100 L/min with a**ccuracy: ±1.5% of reading**. The **Operating Pressure is** up to 5 bar with Digital LCD.

v. Pressure Gauge: The m**easurement range:** 0–10 bar with a**ccuracy: ±1% full scale**. The c**onnection Size: ¼ inch** and m**aterial:** Stainless steel casing.

vi. Temperature Sensors (Thermocouples): K-type thermocouple with t**emperature range:** −200°C to 1250°C and a**ccuracy:** ±1.5°C. The r**esponse time:** < 2 seconds and p**robe Material:** Stainless steel

vii. $CO_2$ Storage Cylinder: **Material:** High-pressure steel cylinder with s**torage capacity:** 40–50 L, **Maximum Pressure:** 150–200 bar and s**afety features:** Pressure relief valve and regulator

THE MOST PROMISING
MARITIME TRAINING INSTITUTE

RANKED GRADE A1
(OUTSTANDING)

## D. G. Shipping
## Approved Course

# Basic Training for Oil and Chemical Tanker Cargo Operations (CHEMCO)

**13th - 18th April 2026**

**6 Days**

**COURSE FEE**
**RS. 9950/-**

**For Booking, visit: https://imare.in/**

## For any queries:


training@imare.in  022 2770 1664 & 27711663

8454847896

IMEI HOUSE, Plot No.94, Sec-19, Nerul,
Navi Mumbai – 400 706


**Visit: https://imare.in/**

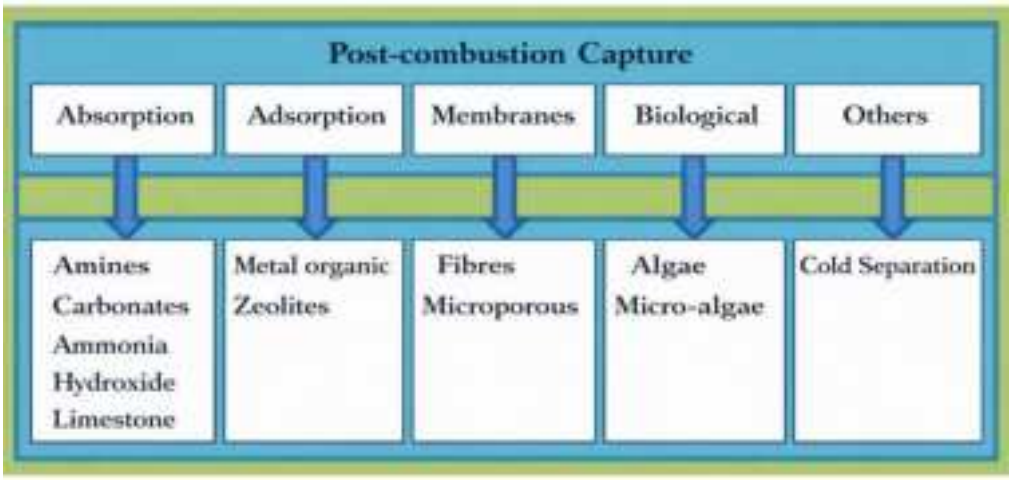



**Figure. 2 Post Ignitions Confine Methods**

viii. Data Acquisition System: **Input Channels:** 8–16 channels with **sampling Rate:** Up to 1 kHz. The **Input Type:** Analog and digital with USB or Ethernet connection to computer

ix. Computer with Data Analysis Software: **Processor:** Minimum Intel i5 with **RAM:** 8 GB or higher and **Software:** MATLAB and Excel for data analysis with o**perating System:** Windows compatible

## Description of Operation/experiment/project:

At the start of the experiment, a marine engine or a simulated exhaust gas source is operated to generate exhaust gases similar to those produced during normal ship operations. These gases typically contain carbon dioxide ($CO_2$), nitrogen oxides (NOx), carbon monoxide (CO), oxygen ($O_2$), and other combustion by-products. A flue gas analyzer is used to measure the initial concentration of these gases before they enter the carbon capture system. This baseline measurement helps determine the original level of greenhouse gas emissions.

The exhaust gas is then directed through a gas flow control system where the flow rate and temperature are regulated using flow meters and temperature sensors. Maintaining a controlled flow rate ensures consistent experimental conditions and reliable data collection.

After regulation, the exhaust gas enters the carbon capture unit, which is typically a packed absorption column containing a chemical solvent such as monoethanolamine. In this unit, the solvent absorbs carbon dioxide from the exhaust gas through a chemical reaction between the $CO_2$ molecules and the amine solution. As the gas moves upward through the column and the solvent flows downward, the $CO_2$ is separated from the gas stream.

The treated gas leaving the carbon capture unit is then analyzed again using a $CO_2$ analyzer and flue gas analyzer to measure the remaining concentration of carbon dioxide. By comparing the $CO_2$ concentration before and after the capture process, the efficiency of the carbon capture system can be calculated depicted in figure 2.

The absorbed carbon dioxide is then transferred to a $CO_2$ storage cylinder where it is temporarily stored for measurement and further analysis. Pressure gauges and temperature sensors continuously monitor system conditions to ensure safe and stable operation throughout the experiment.

During the experiment, data acquisition system records parameters such as gas concentration, temperature, pressure, and gas flow rate in real time. This data is later analyzed using computer software to determine the performance of the carbon capture system, including capture efficiency and operational stability.

The results obtained from the experiment help assess whether carbon capture technology can effectively reduce greenhouse gas emissions from marine engines and determine its feasibility for application in the marine field.

## Tests/Experiments were carried out as follows:

System Setup and Calibration: All equipment, including the flue gas analyzer, $CO_2$ sensor, flow meter, and temperature sensors, were installed and calibrated. The absorption column was filled with a solvent such as monoethanolamine.

Exhaust Gas Generation: A marine engine or simulated exhaust source was operated to produce exhaust gases similar to those from ship engines.

Initial Emission Measurement: The flue gas analyzer measured the initial concentrations of gases such as $CO_2$, CO, NOx, and $O_2$ before entering the carbon capture unit.

Carbon Capture Process: The exhaust gas was passed through the absorption column where the solvent absorbed carbon dioxide from the gas stream.

Final Gas Measurement: The treated gas leaving the system was analyzed again to determine the reduction in $CO_2$ concentration.

Data Collection and Analysis: All experimental data such as gas concentration, temperature, and flow rate were recorded and analyzed to calculate the carbon capture efficiency.

Repeated Trials: The experiment was repeated under different conditions to ensure reliable results.

## Results & Observations:

The experiment showed that the carbon capture system effectively reduced carbon dioxide ($CO_2$) in the exhaust gas from the simulated marine engine. Initial measurements indicated high $CO_2$ concentrations before the gas entered the capture unit.

After passing through the absorption column, the $CO_2$ concentration decreased significantly. The system achieved an average capture efficiency of about 60%–85%, depending on conditions such as gas flow rate and temperature.

It was observed that lower gas flow rates improved $CO_2$ absorption due to longer contact time with the solvent. The system operated safely and the captured $CO_2$ was successfully stored. Overall, the results indicate that carbon capture technology has strong potential to reduce greenhouse gas emissions from marine engines.

## Conclusion/Inference:

The study concludes that carbon capture technology can be an effective method for reducing greenhouse gas emissions from marine engines. The experimental results showed that a significant amount of carbon dioxide ($CO_2$) can be captured from exhaust gases using an absorption-based carbon capture system. The tests demonstrated that the efficiency of $CO_2$ capture depends on factors such as gas flow rate, temperature, and solvent performance. Under controlled conditions, the system was able to reduce a large portion of $CO_2$ emissions, indicating its potential for application in the maritime sector. However, further research and large-scale implementation studies are necessary to address challenges such as system size, energy consumption, and cost. Overall, carbon capture technology presents a promising solution for supporting cleaner and more sustainable maritime operations.

## Scope for further Studies:

**Large-Scale Implementation** – Investigate the feasibility of integrating carbon capture systems on full-sized commercial ships, including design modifications and space optimization.

**Alternative Capture Methods** – Explore other carbon capture technologies, such as membrane separation, cryogenic capture, or adsorption-based systems, for marine applications.

**Energy Optimization** – Study ways to reduce the energy consumption of on-board carbon capture systems to make them more efficient and cost-effective.

**Economic Analysis** – Conduct a detailed cost-benefit assessment, including installation, operation, and maintenance costs for different types of ships.

**Environmental Impact Assessment** – Evaluate the long-term environmental effects of storing or utilizing captured $CO_2$ from marine vessels.

**Hybrid Solutions** – Explore combining carbon capture technology with alternative fuels or other emission reduction strategies to achieve maximum greenhouse gas reduction.

**Regulatory and Policy Framework** – Research policies and international regulations that could support the adoption of carbon capture technologies in the maritime industry. These areas of study can help determine the practical viability and long-term benefits of carbon capture technology for reducing greenhouse gas emissions in shipping

## Bibliographic References used for the Project:


1. Buhaug, et.al, Second IMO GHG Study 2009, International Maritime Organization (IMO) London, UK, (April 2009) 30th Annual Interferry Conference, The image of the industry, International shipping: carrier of world trade, Chairman's opening remarks, Secretary-General of the International Maritime Organization, London, 6th October 2005.
2. Shipping impact on climate. (A source with solutions) [Online] (2008)
3. http://oceana.org/sites/default/files/o/fileadmin/oceana/uploads/Climate_Change/Oceana_Shipping_Report.pdf CO2 emissions from ships
4. http://www.dnv.com/industry/maritime/publicationsanddownloads/ publications/updates/bulk/2011/3_2011/CO2 emissions fromshipsthelatestimoregulatory developmentandwhattheymeanforbulkcarriers.asp
5. Shipping world trade and reduction of CO2 Emissions [Online] (2010) [Accessed 26th January2012]. www.ics-shipping.org
6. Shekhawat, D. L., D.R.; Pennline, H.W.; 2003, A review of carbon dioxide selective membranes- A topical report, National Energy Technology Laboratory, United States Department of Energy.
7. Damle, A. S. & Dorchak, T. P. 2001. Recovery of carbon dioxide in advanced fossil energy conversion processes using a membrane reactor. Journal of Energy and Environment Research, 1, 77-89.
8. Lindstad, E., 2019. Increased Use of LNG Might Not Reduce Maritime GHG Emissions at all, June 2019, Transport & Environment's (T&E)
9. Lindstad, E., Rialland, A., 2020. LNG and Cruise Ships, an Easy Way to Fulfil Regulations—Versus the Need for Reducing GHG Emissions. Sustainability 2020, 12(5), 2080; DOI: 10.3390/su12052080
10. IMO GISIS, 2019. Marine Environment Protection Committee, 76th session, Energy Efficiency of Ships, Report of fuel oil consumption data submitted to the IMO Ship Fuel Oil Consumption - Database in GISIS (Reporting year: 2019), MEPC 76/6/1, 10 March 2020.


## About the Authors


**Cadet Anirban Debbarma,**

**Cadet Abhimanyu Singh**

B.Tech (Marine Engineering), Second Year, Indian Maritime University, Kolkata Campus

# The Institute of Marine Engineers (India)

## CONTACT DETAILS

**For General Queries:**
(Except Courses, TAR Book, Membership and MER / iMélange):
The Institute of Marine Engineers (India) "IMEI House"
Plot No. 94, Sector-19, Nerul, Navi Mumbai – 400706, India
Phone: +91 22 2770 1664, +91 22 2770 6749
E-mail: hgs@imare.in

**For Training/Admission:**
**Training Programmes:**
The Institute of Marine Engineers(India) "IMEI House "
Plot No. 94, Sector-19, Nerul, Navi Mumbai – 400 706, India.
Phone: 022 – 27711663 / 27701664
Mobile No.: +91 – 9967875995 | E-mail: training@imare.in

**For Membership Queries:**
The Institute of Marine Engineers(India) "IMEI House"
Plot No. 94, Sector-19, Nerul,
Navi Mumbai – 400 706, India
Phone: +91 22 2770 1664, +91 22 2770 6749
E-mail: membership@imare.in

**Send your Articles to:**
The Institute of Marine Engineers(India) "IMEI House"
Plot No. 94, Sector-19, Nerul,
Navi Mumbai – 400 706, India
Tel.: +91 22 2770 1664 | Fax: +91 22 2771 1663
E-mail: editormer@imare.in / subeditor@imare.in

**For iMélange Queries and Articles:**
The Institute of Marine Engineers(India) "IMEI House"
Plot No. 94, Sector-19, Nerul,
Navi Mumbai – 400 706, India
Tel.: +91 22 2770 1664
E-mail: editornewsletter@imare.in / subeditor@imare.in

IME(I) House, Nerul, Navi Mumbai