





WELCOME ABOARD!

WELCOME TO REAL
PARTNERSHIP!

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TRAINING PARTNERS

Building the future of maritime together – empowering diverse talent through skills, opportunity, and inclusive training environments



“ Technology may continue to transform shipping, but the future of maritime safety and operational excellence will always depend on people; competent, adaptable, and well-trained professionals. ”



WELCOME MESSAGE

Dear Readers,

We are pleased to present the 2026 Marlow Navigation *Training Journal*.

The Training Journal serves as an important platform for sharing developments, initiatives, and insights in maritime education and training across the Marlow global network.

Each year, it provides an overview of the latest news and activities, major projects, equipment and facility upgrades, industry partnerships, and Key Performance Indicators (KPIs), together with feature reports covering some of the most relevant topics shaping maritime training today.

The maritime industry continues to undergo a period of profound transformation. Rapid technological advancement, increasing ship automations, digitalisation, decarbonisation initiatives, alternative fuels, evolving cyber risks, and growing regulatory complexity are fundamentally reshaping ship operations and competency requirements across all ranks. At the same time, the industry continues to face wider global uncertainties, increasing operational demands, and an ongoing need to attract, develop, and retain highly skilled maritime professionals.

This year's journal reflects many of these developments and challenges. In the Opinion piece, we examine the role of the firmly established Marlow Training Matrix and Continuous Proficiency Development (CPD) in supporting long-term competence, while also exploring the importance of maintaining balance between systems, structure, and the human element.

For the Analysis, Industry expert Anastasia Kouvertari, Senior Lead, Human Competency at Lloyd's Register Maritime Decarbonisation Hub, covers the importance of strengthening the trainer pipeline for alternative fuels education and supporting the industry's wider transition towards decarbonisation. Meanwhile, in our Interview, we speak with Roy Akker, newly appointed Training Director at United Marine Training Center (UMTC) in Manila, discussing how maritime education must continue to evolve to prepare cadets and seafarers for an increasingly digital, automated, and sustainability-driven industry.

Elsewhere in the journal, our Facts & Figures section highlights continued stability and growth across Marlow's global training activities, particularly through blended learning approaches, structured cadet development programmes, and long-term investment in career progression pathways.

Importantly, while technology continues to advance rapidly, the human element remains central to safe and efficient shipping. Competence today extends far beyond technical knowledge alone. Increasingly, the modern seafarer must also possess a range of strong soft skills, including adaptability, critical thinking, leadership, communication, resilience, digital awareness, and sound decision-making in often complex and high-pressure environments.

For this reason, training today must be continuous, practical, forward-looking, and closely aligned with real operational needs. It must also remain flexible enough to adapt to changing technologies, emerging risks, evolving regulations, and the expectations of new generations entering the profession.

At Marlow, together with our longstanding training and industry partners around the world, we remain fully committed to supporting this development through ongoing investment in people, instructors, infrastructure, modern learning systems, and competence-based training programmes. Ultimately, the long-term safety, sustainability, and operational excellence of the maritime industry will continue to depend not only on technology itself, but on the professionalism, capability, adaptability, and preparedness of the people operating it.

We extend our sincere thanks to all our clients, training partners, seafarers, cadets, shore-based staff, and their families for their continued trust, cooperation, and support.

We hope you enjoy reading this year's *Training Journal*.

**Marlow Navigation
Management**

MARLOW AND GREEN MARINE TEAM UP

Marlow Navigation teams up with Green Marine to ensure vessel crews are ready for alternative fuels.

To support its customers in the transition from conventional to alternative fuels and to further strengthen the qualification and preparation of the crew supplied to its clients, Marlow has forged a close partnership with Green Marine, the industry leader in the methanol-as-marine fuel chain.

This decision was based on the very successful and tested cooperation over the last two years, during which the focus has been on several training initiatives, knowledge exchange and support in the area of low flash point fuels which resulted in United Marine Training Center (UMTC) - Marlow's partner training centre in the Philippines - becoming a fully accredited provider of IGF courses (STCW).

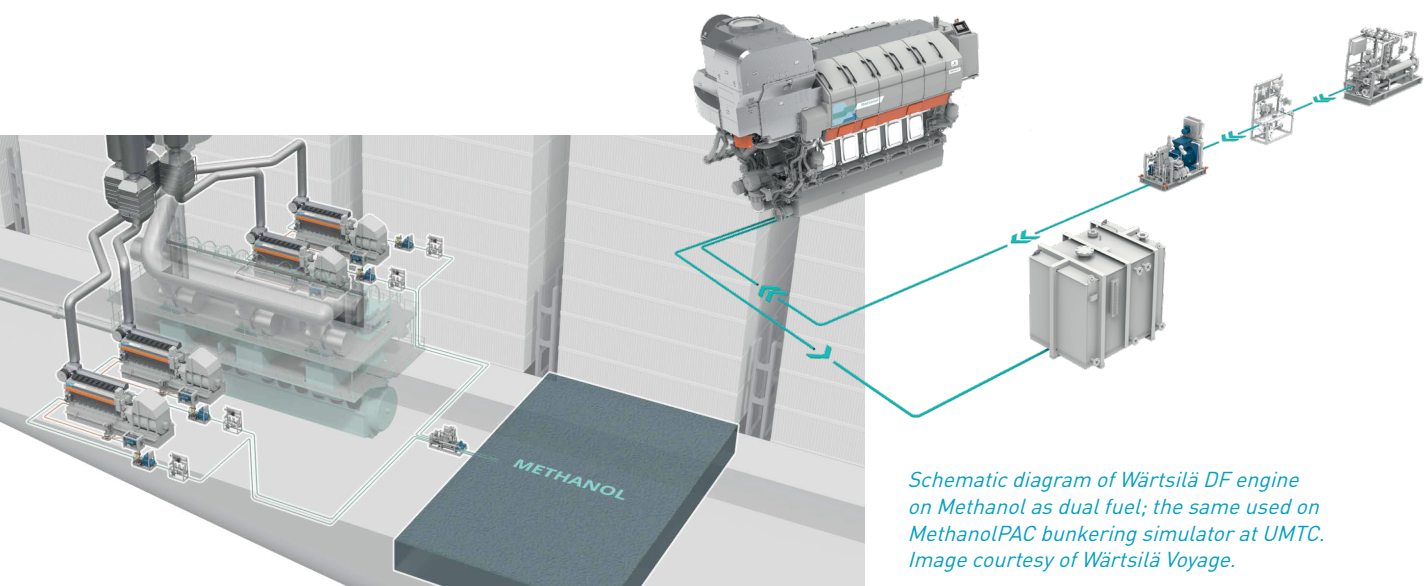
Green Marine, best known for its pioneering role in supporting shipowners and managers with the implementation process of methanol as an alternative fuel, will support and assist Marlow by providing consultancy, technical advice, and training to owners

and crews on vessel design and layout, operational processes and procedures, and the safe handling of methanol-fuelled engines, with future support also planned for LNG, ethanol, and ammonia.

Green Marine's engineering background combined with expert knowledge gained from consulting clients on the majority of new and retrofit alternative fuel projects globally, ensures Green Marine is positioned right at the forefront of new developments and innovation, constantly updating its knowledge platform.

Together with Green Marine, Marlow is now able to offer face to face and simulator training on alternative fuels in the Philippines via its dedicated training partner, United Marine Training Center (UMTC), and soon also in Europe. Utilising the existing resources of Green Marine in the Far East, including Singapore and China, as well as through the development of blended learning courses with live online classrooms, the aim is to provide learning solutions on a global scale.

"We have always seen training as a vital part of our service when offering crew and technical management. The cooperation agreement with Green Marine provides Marlow with access to the expertise on alternative fuels. It further enhances our ability to provide customised solutions to our customers whilst strengthening the qualification of our crews," stated Marlow's General Manager, Joern Clodius.



Schematic diagram of Wärtsilä DF engine on Methanol as dual fuel; the same used on MethanolPAC bunkering simulator at UMTC. Image courtesy of Wärtsilä Voyage.



Training on handling of methanol-fuelled engine in the Philippines

“The cooperation agreement with Green Marine provides Marlow with access to the expertise on alternative fuels. It further enhances our ability to provide customised solutions to our customers whilst strengthening the qualification of our crews.”

Clodius goes on to stress that it is of utmost importance to prepare crews for the changes ahead:

“We don’t know yet what finally will be the chosen fuel of the future. Much will depend on the availability of the specific alternative fuel and the expected trading area of the vessel. For that reason, we must be able to provide solutions for the different options with their own characteristics and dedicated training needs,” continued Clodius.

“The one size fits all approach, which in some areas may have been an option in the past has definitely run its course and crews today, more than ever before, need to be specifically trained for the vessels, engines and fuels they are in charge of.”

“At Green Marine, our mission has always been to bridge the knowledge gap between today’s conventional operations and tomorrow’s clean-fuel reality,” added CEO of Green Marine, Fredrik Stubner.

“This partnership with Marlow allows us to expand our global network of maritime professionals and apply more than a decade of direct experience in methanol and other low-flashpoint fuels to a new generation of seafarers. By embedding best practice from real-world projects into high-impact training, we can accelerate safe adoption, strengthen operational readiness, and contribute tangibly to the decarbonisation of shipping.”

www.greenmarine.dk



Training on handling of methanol-fuelled engine in the Philippines

NEWS & EVENTS

KSMA AND MARLOW RENEW THEIR PARTNERSHIP

Kherson State Maritime Academy (KSMA) and Marlow Navigation have renewed their long-standing cooperation agreement to advance maritime education and training opportunities for Ukrainian cadets.

The signing ceremony took place in Chisinau at the end of October 2025 and was attended by KSMA's Rector, Professor Viktor Husiev, and Assistant Professor of the Department of Shipping and Ship Management, Captain Sergey Dudchenko, together with Marlow's General Manager, Joern Clodius, Training & Development Manager, Captain Martin Bankov, and Managing Director of Marlow's Ukraine office, Captain Boris Ezri.

Rector Husiev expressed deep gratitude to Marlow for its continued support, highlighting the company's crucial role in ensuring high-quality education and employment opportunities for graduates, as well as maintaining stability for maritime professionals during a challenging time for the country.

"We extend our thanks to Marlow Navigation for many years of trust, support, and genuine partnership that continues to help the Academy move forward with confidence," said Rector Husiev. "Our cooperation stands as an example of stability, mutual respect, and shared commitment to developing modern maritime education and training in Ukraine," he said.

During the meeting, both sides discussed current challenges, joint initiatives, and further steps to enhance the quality of education and practical training for cadets. The renewed agreement underscores a shared goal – to strengthen professional training and development and ensure that KSMA graduates continue to have career opportunities, and meet the



KSMA's Rector, Professor Viktor Husiev and Marlow's General Manager, Joern Clodius

highest international maritime standards. Ukrainian seafarers continue to play a vital role in sustaining global maritime operations, contributing significant expertise and resilience that keep international shipping and trade networks functioning. Reflecting on the partnership, Clodius reaffirmed the company's ongoing commitment:

"We are pleased to continue this longstanding and successful cooperation – now approaching its 20th year – for the training and development of Ukrainian cadets and marine professionals," he stated. "This partnership has shown great resilience and successes, especially during recent challenging years. We remain fully committed to supporting KSMA cadets in their training and career development."

Through this enduring collaboration, KSMA continues to strengthen its reputation as one of Ukraine's leading maritime institutions and a recognised National and International Maritime Education Centre of Excellence; shaping the future of Ukrainian marine professionals and the global maritime workforce.

KSMA and Marlow renew their partnership to further strengthen maritime training and professional career development for Ukrainian cadets.



MARLOW INDIA - IMEC VISIT TS RAHAMAN TO INSPIRE FUTURE MARITIME CAREERS

Together with IMEC, Marlow India visited TS Rahaman in India to present their structured training and career programmes to aspiring cadets.



IMEC cadet programme Open Day at TS Rahaman Training Institute. From left to right: ASP Singapore Representative, Captain Vaibhav; CEO – Maritime Training & Research Foundation and MASSA, Captain Shiv Halbe; TS Rahaman Faculty; Marlow's Director in India, Captain Ashutosh Bajpai; IMECs Rob Gale and Gary Mills; and Principal, TS Rahaman Training Institute, Captain Ashutosh Apandkar.

Marlow India, together with The International Maritime Employers' Council (IMEC), visited the Indian maritime training institute Sir Mohammed Yusuf Seamen Welfare Foundation Training Ship Rahaman (TS Rahaman) at the beginning of this year to engage with aspiring cadets and highlight career opportunities in merchant shipping.

The visit provided an opportunity to introduce students and their families to career pathways at sea and the transition from cadetship to senior officer roles through industry-partnered training programmes. Representatives spoke about the value of structured maritime education and training that combines academic learning with practical experience on commercial vessels.

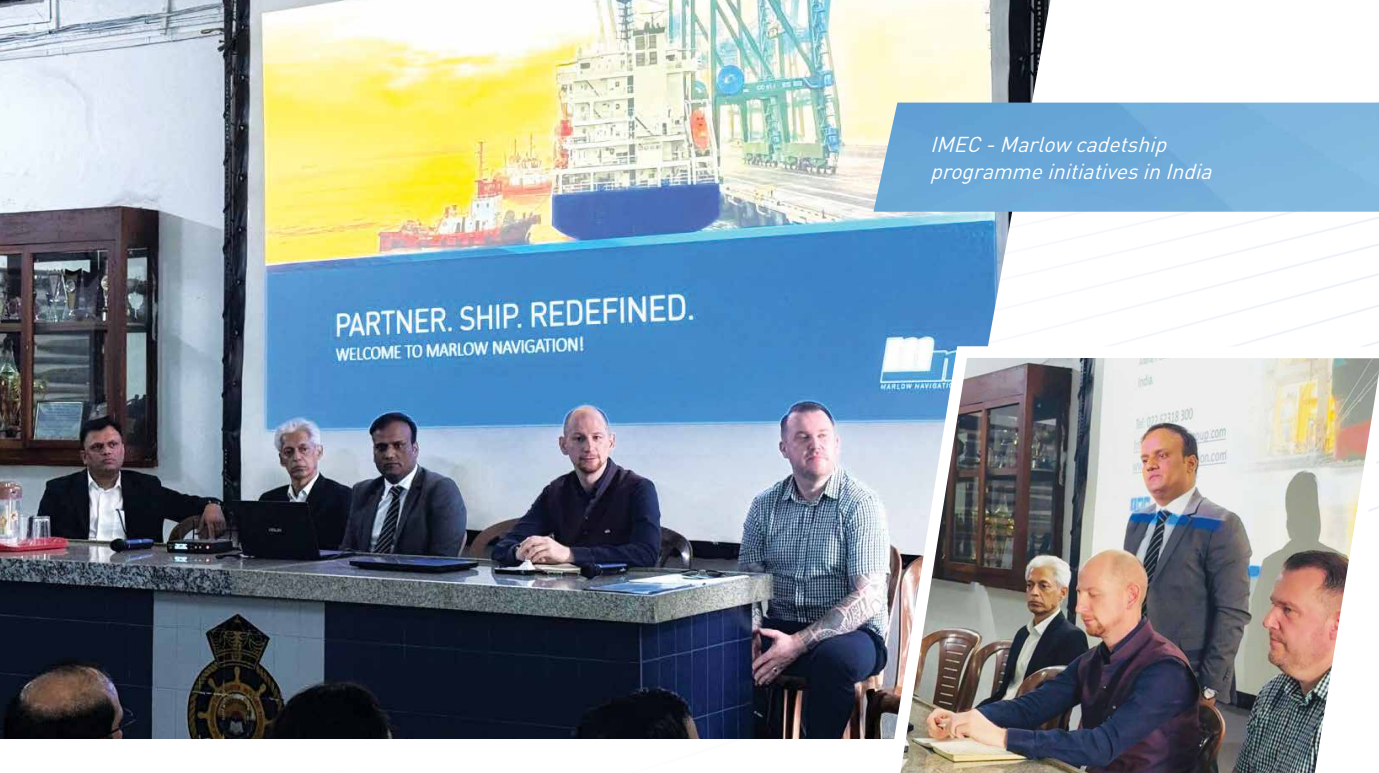
The IMEC India Cadet Training Programme, launched in 2023, is a 2.5-year course that provides Indian nationals with deck and engineering training and career opportunities. Each successful candidate who passes the rigorous selection process is then interviewed and enlisted by a pool of sponsoring IMEC-member shipping companies, including Marlow, which provide training berths and guarantee invaluable sea-time experience.

Cadets are not only trained to become competent seafarers but are selected for their potential to become the next generation of leaders at sea.

The course is divided into two phases, with the first year spent at the academy. After successfully completing year one, cadets then undertake the required sea time, completing their onboard training record book. They subsequently return to the academy to sit their examinations and, upon successful qualification, have the opportunity to return to their sponsoring company for full-time employment and continue their maritime careers.

The visit to TS Rahaman also served as an open forum for students and parents to ask questions about the training programmes and the maritime profession in general. Topics ranged from academic entry requirements and employment opportunities to ongoing training and development, welfare provisions, and support systems available to seafarers throughout their careers.

By sharing insights into global industry standards, evolving expectations, and diverse career prospects, the discussions aimed to help students make well-informed decisions about their future careers at sea.



IMEC's Head of Training Rob Gale and Training Officer Gary Mills, together with Marlow's Director in India, presenting the IMEC-Marlow cadet training programme to TS Rahanam Training Institute.

Representing Marlow during the visit was Managing Director of the offices in India, Captain Ashutosh Bajpai, alongside IMEC's Head of Training, Rob Gale, and Training Officer Gary Mills.

"It was a privilege to engage with aspiring young minds at TS Rahaman during an insightful session focused on careers at sea through the IMEC-Marlow programme," said Captain Bajpai. "We had good dialogue with both students and parents, discussing practical career pathways, professional development, and the long-term value of choosing the right education and training framework. The enthusiasm of the students and the constructive engagement of their parents made the interaction both enriching and rewarding."

"Engagements such as these play a vital role in supporting and nurturing the next generation of maritime professionals, helping to strengthen the future talent pipeline for our industry. Our sincere appreciation goes to Captain (Dr) Ashutosh Apandkar for his gracious hospitality and for hosting such a well-organised and impactful session at TS Rahaman," added Bajpai.

Established in 2006, Marlow India operates from two key offices in Mumbai and Chennai with more than 60 staff, sourcing, recruiting, and employing Indian crew for the group worldwide. Meanwhile, Marlow's own structured cadet training programmes have been established for over three decades, reflecting the company's strong commitment to training and the development of long-term maritime careers.

"With India recognised as a major supplier of maritime talent and an important emerging market for us at Marlow, we remain firmly committed to our presence in the country and to supporting and

expanding such training initiatives with IMEC," stated Director of Crewing & Training at Marlow, Frank Brodersen.

"What makes this programme unique is the academic-industry partnership and its focus on delivering sustainable, high-quality education alongside practical onboard training. This approach fully prepares cadets for the demands of an ever-evolving maritime industry," he added.

Training Ship Rahaman traces its origins back to 1910, when Haji Ismail Yusuf, proprietor of the Bombay Steam Navigation (BSN) company, established a marine school as a charitable institution at Rashid Mansion, Worli Point, in what was then Bombay.

The initiative was created as a gesture of gratitude to the seafaring community who had served loyally aboard the company's vessels. Its mission was to encourage the orphans and wards of seafarers – regardless of caste, creed, or religion – to follow in the footsteps of their forefathers, while also helping to address the growing shortage of trained deckhands and officers in the country's emerging mercantile marine.



Together with Principal at TS Rahaman Training Institute, Captain Ashutosh Apandkar

NEWS & EVENTS

TRAINING AND CAREER OPPORTUNITIES FOR CADETS FROM CAPE VERDE

Marlow continues to strengthen its commitment to developing maritime talent in Cape Verde, actively exploring new opportunities to provide onboard training and long-term career prospects for cadets.

Recently, Director of Crew Operations from Marlow's Netherlands office, Georg Buseman travelled to Cape Verde to support the interviewing and selection process. In total, 56 cadets were interviewed during this round.

During his visit, Buseman also met with the Dean and staff members at the Faculty of Engineering and Maritime Science at Universidade Técnica do Atlântico (UTA), and toured the deck, engine, and naval electro-technics training facilities.

Several of the shortlisted cadets are graduates of UTA, while others studied at maritime academies in Portugal and Brazil.

"This visit and the interviews demonstrated excellent potential for recruiting new talent for our group," said Buseman. "Cape Verde is an important recruitment location and has shown strong promise and loyalty for Marlow over the last 40 years. The company remains committed to its presence in Cape Verde through a dedicated local office and team, and we are now keen to expand this further by offering structured training and career opportunities for cadets."



Full mission bridge simulator by Wärtsilä

"We look forward to establishing a strong, long-term partnership with UTA, while remaining open to cadets from other institutions. With close to 1,200 vessels of all types under our crew management, and well-established recruitment and training programmes, Marlow is well positioned to provide Cape Verdean maritime professionals with invaluable sea-going experience, training, and clear career progression," he added.

The visit also coincided with the annual audit of Marlow's crew recruitment office in Cape Verde, and held a social event for local crew members.

Marlow Navigation Cape Verde operates as a manning agency, sourcing, recruiting, and managing Cape Verdean crew exclusively for the Marlow Group worldwide. The office also promotes seafaring as an attractive and viable career path locally, and Marlow as one of the industry's leading employers. Notably, seafarers from Cape Verde were among the very first crew members hired by Marlow.



Full Mission Engine and Bridge Simulators by Wärtsilä

“This visit and the interviews demonstrated excellent potential for recruiting new talent for the Marlow Group.”

STRENGTHENING SEAFARER ENGAGEMENT AND DEVELOPMENT

Throughout 2026, Marlow Navigation continued its commitment to seafarer learning, development and operational excellence by hosting a series of Crew and Senior Officer Seminars across its global network, including in the Philippines, Poland, Bulgaria, Romania, Moldova, India, Cape Verde, and for the first time, Georgia and Sri Lanka.

The seminars brought together senior officers and crew from various ranks, alongside shore-based teams and company leadership from each local office and Group headquarters in Cyprus. In many of the locations, the events also welcomed Ukrainian seafarers currently based in the region, further reinforcing support and collaboration across Marlow's international workforce.

"Marlow's crew seminars serve as an important platform for strengthening communication and relationships between ship and shore colleagues, fostering a shared understanding of company objectives, and reinforcing a unified safety and performance culture across the fleet," said Senior Crew Superintendent from Marlow's Head Office in Cyprus, Radostin Petrov, who conducted presentations in a number of these seminars.

Programmes across all locations follow a structured yet interactive format, beginning with welcome sessions and introduction of participants, followed by updates on latest company developments, as well as key trends shaping the wider shipping industry.

Particular emphasis is placed on areas such as crew training and career development, onboard best practices, safety management, and seafarer mental health and wellbeing.

Participants also engage in practical case studies based on real-life scenarios at sea, encouraging open discussion, knowledge-sharing, and the exchange of experiences. Such interactive elements play a key role in enhancing communication, critical thinking, decision-making, and teamwork – soft skills essential for today's increasingly complex maritime operations.

In line with current industry developments, the seminars address evolving challenges, such as digitalisation, decarbonisation, regulatory changes, and the growing importance of human factors in safe and efficient ship operations. They also highlight the need for continuous learning and adaptability, ensuring seafarers remain well-prepared to meet both present and future demands.

Beyond technical and operational topics, Marlow's crew seminars provide valuable opportunities for networking and strengthening relationships between colleagues from different vessels, offices, and regions. Social mixers and informal discussions further contribute to building trust, teamwork, and a strong sense of community within the organisation.

Finally, always a highlight of the events is the recognition of long-serving seafarers, with awards presented to those marking 10 and 25 years of service, celebrating dedication, loyalty, and long-term commitment to the company. We are proud that, to date, more than 16,900 seafarers have reached their 10-year milestone, while over 1,100 have celebrated 25 years of service with Marlow.

"By investing in such initiatives, we continue to support the professional growth of our seafarers while enhancing safety, quality, and efficiency across our operations. These seminars not only contribute to improved performance at sea, but also empower our crew to build sustainable and rewarding careers," added Marlow's Crew Operations Manager, Boguslaw Walczak, who also delivered a number of presentations.



Director of Crew Operations at Marlow Navigation Netherlands, Georg Buseman and Deputy Managing Director at Marlow Navigation Ukraine, Sergiy Khlopkov leading the Senior Officers Seminar in Bulgaria, Varna



Crew and Senior Officer Seminars Across Marlow Navigation's Global Network



THE NAUTICAL INSTITUTE EXPLORES POTENTIAL COLLABORATION WITH UMTC



Marlow Navigation's dedicated training partner in the Philippines, United Marine Training Center (UMTC), recently hosted a delegation from The Nautical Institute – one of the world's leading professional bodies for maritime professionals – to explore potential areas of collaboration.

The delegation was led by The Nautical Institute's CEO, Captain John Lloyd, together with Head of Academy, Dr Somiyeh Djavanroodi, and was joined by UMTC's leadership team.

The visit included a comprehensive tour of UMTC's facilities, showcasing its state-of-the-art simulators, workshops, laboratories, and practical training environments. The delegation also gained insight into the centre's training framework, academic programmes, and commitment to maintaining high standards in maritime education.

As part of the engagement, the Nautical Institute expressed strong interest in UMTC's training capabilities and high quality of education, as it explores potential membership and partnership opportunities.

"As we continue to expand our global partnerships and academic affiliations, this engagement with The Nautical Institute marks an important milestone in further strengthening our international presence and positioning," said recently appointed Training Director at UMTC, Roy Akker. "It reflects the growing

global recognition of UMTC's capabilities and its alignment with international maritime training standards."

"We look forward to further discussions and to exploring opportunities that will enhance training excellence, academic quality, and industry collaboration – all in support of developing competent, highly skilled, and globally competitive maritime professionals," added Akker.

Established in 1971, The Nautical Institute is an international membership organisation representing maritime professionals and seafarers worldwide, and is widely recognised as a leading authority in the industry.

As an educational charity with consultative status at the International Maritime Organization (IMO), the Nautical Institute promotes the highest standards of professionalism, competence, and safety at sea and ashore.

Through its global network, The Nautical Institute connects expertise and leadership across the maritime sector, providing accreditation frameworks, industry guidance, publications, and professional development pathways. It also works closely with NGOs, IGOs, and other organisations to encourage knowledge exchange, support best practices, and contribute to a safer and more sustainable shipping industry.



L to R: Head of UMTC Deck Department, Captain Albino R. Ridulfa JR.; The Nautical Institute's Head of Academy, Dr Somiyeh Djavanroodi and CEO, Captain John Lloyd; UMTC's Training Director, Roy Akker

TRAIN WITH HEART, SAIL WITH PURPOSE



WORLD-CLASS TRAINING,
REAL-WORLD STANDARDS.



www.umtc.com.ph

THE TRAINING MATRIX: A STRATEGIC IMPERATIVE FOR A FUTURE READY MARITIME WORKFORCE

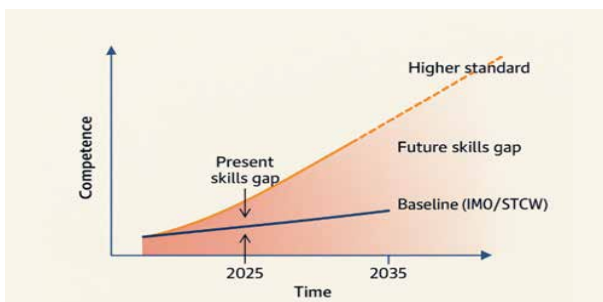
An Analytical Perspective

The maritime sector is undergoing profound transformation. Digitised bridge systems, smart engines, ship automations, remote diagnostics, data-driven operations, and alternative fuels are redefining what it means to operate a vessel safely and efficiently.

Yet while technology accelerates, one part of the ecosystem remains slow, rigid, and insufficiently modernised – formal maritime education and regulatory frameworks for these transformations.

Maritime academies – restricted by outdated syllabi, limited budgets, and the slow evolution of the STCW Convention – continue to prepare seafarers for ships of the past. This has created a widening structural gap between what seafarers are taught and what the industry actually requires to ensure safe, reliable, high-performance operations.

As a result, a growing skills gap has placed unprecedented responsibility on the shipping sector, an industry that can no longer afford delays in competency development when safety, compliance, and commercial performance depend so directly on crew readiness.



Source: SkillSea – Skills and competence gap between current and future needs

The diagram illustrates how baseline standards defined by IMO/STCW are rising only gradually, while the industry's real operational demands are accelerating at a much faster pace.

This divergence creates:

- A present skills gap, already visible today as operational realities outpace formal regulatory training;
- A future skills gap, projected to expand significantly by 2035, driven by new fuels, digitalisation, automation, and increasingly complex vessel systems;

- A rising performance benchmark, representing the level forward-leaning operators must achieve to remain safe, compliant, and competitive.

In short, the competence required on board is increasing faster than the industry's traditional training pipeline, placing the burden on companies themselves to accelerate upskilling, continue modernising training, and close the gap proactively.

When regulation cannot keep pace with innovation

STCW's core competencies remain important, but its slow update cycle and rigid framework make it increasingly misaligned with modern operational needs. Essential capabilities – such as automation oversight, digital systems management, alternative fuel handling, cyber hygiene, and integrated systems troubleshooting – remain insufficiently addressed.

In practice, regulatory developments cannot keep pace with rapid vessel digitisation, complex fuel transitions, and increasingly data-driven maritime operations. The responsibility for competence development has therefore shifted decisively from regulation to the industry itself.

The industry caught between two pressures

Shipping companies today stand between the hammer and the anvil.

On one side are the regulators and Maritime Education and Training (MET) institutions issuing certificates of competence based on outdated framework. On the other are vetting inspectors, charterers, port authorities, and insurers demanding demonstrable proficiency aligned with modern technology, evolving risk profiles, and heightened safety expectations.

This dynamic leaves shipping companies squeezed between the "talent factory", such as academies producing minimum-standard competence, and a vetting and assurance ecosystem that demands far more.



Source: Marlow, AI assisted creation

Cadet taking bearings with azimuth mirror in the full mission bridge simulator.



MARLOW OPINION

Vetting mechanisms: prevention, not a cure for all

Recently established vetting systems such as RightShip inspections have emerged as proactive, prevention-focused tools designed to identify operational risks and evaluate the effectiveness of a vessel's Safety Management System (SMS). However, they are not a cure-all for under-trained or under-prepared crews.

Instead, they function for both:

- Standardised Risk Prevention Tool – providing consistent benchmarks across dry bulk shipping, ensuring uniform application of safety expectations, something traditional training systems still struggle with; and
- Best Practice Alignment Mechanism – By incorporating inspection criteria guidance from IMO, ISO, OCIMF, P&I Clubs, and other leading safety bodies, they ensure vessels are measured against current industry practices and not yesterday's regulations.

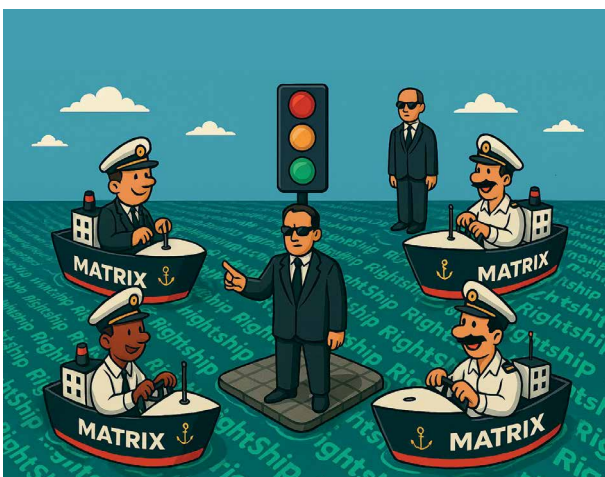
As a result, crew competence becomes directly visible, and directly consequential, during vetting.

The following caricature illustrates the dynamic tension between company driven competence (Matrix), regulatory minima, and RightShip as the “traffic light” inspection (Agent Smith, from The Matrix movie, 1999) that evaluates real operational readiness.

The Training Matrix may act as the company's steering wheel, but vetting increasingly functions as the traffic light, determining whether a vessel proceeds safely, ‘rightly’, or is stopped.

“There is a difference between knowing the path and walking the path.”

Morpheus, The Matrix (movie, 1999)



Source: Marlow, AI assisted creation

Why the industry must lead: operational, financial, and safety realities

Underprepared crew cost far more than training – through incidents and accidents, vetting findings, port delays, off-hire, rising P&I exposure, and reputational damage.

As a result, many leading operators have evolved into competence hubs, effectively assuming educational responsibilities that were once shared with training institutions. The industry is no longer reacting; it is proactively building its own skills pipeline.

The industry's new role: building agile competence ecosystems

Future ready operators are developing dynamic, multimodal training ecosystems, including:

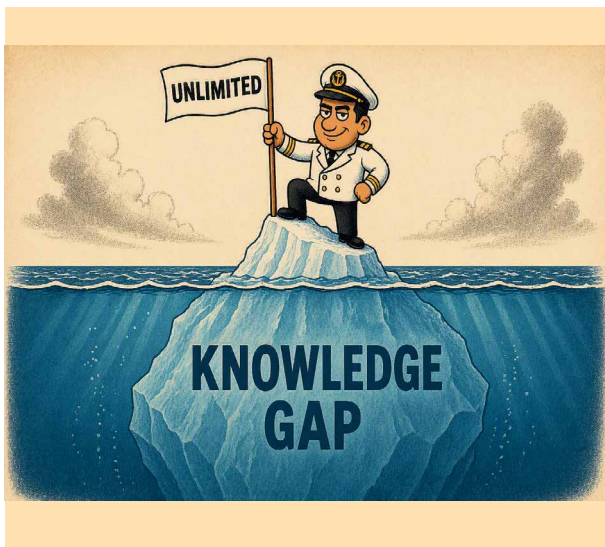
- Vessel type specific learning pathways;
- Original Equipment Manufacturer (OEM) type specific equipment training;
- Simulator based experiential learning;
- Digital microlearning;
- Onboard coaching and mentoring;
- Competence analytics and performance data.

These systems can be updated rapidly without waiting years for regulatory change, and now represent a clear competitive advantage for forward-thinking companies, including Marlow.

The human element: seafarer engagement challenges

Even the most advanced systems cannot succeed without seafarers embracing continuous learning and proficiency development. Persistent barriers remain, including time constraints linked to work and rest hours, reluctance to train during leave, expectations around compensation for training, and the enduring mindset among some seafarers that “an unlimited license is enough.”

Addressing this requires a shift in competence management, such as replacing traditional classroom instruction and basic simulator-based training with flexible, digital learning frameworks that enable remote learning, immersive simulation, and real-time scenario training.



Source: Marlow, AI assisted creation

The Training Matrix: a powerful tool, but only part of the equation

The Training Matrix – a structured, rank- and vessel-specific framework of required courses and competencies – is a valuable tool, providing clarity, standardisation, measurable development pathways, and support for compliance and audits. It helps identify common competency gaps and emerging training needs driven by technological change.

However, a training matrix alone is not enough. It defines the optimum competencies required for a role but does not address individual training needs. Its true value is realised when embedded within a broader Continuous Professional Development (CPD) ecosystem that combines formal training, digital learning, onboard coaching, performance assessment, motivation, and accountability.

In simple terms, the Training Matrix defines what is required; the CPD ecosystem develops the professional. Only this holistic approach can move seafarers beyond compliance and prepare them for the evolving demands of modern shipping.

Advanced automation and technologies
still require troubleshooting
skills from the seafarer

Source: Marlow, AI assisted creation

Alternative fuels: the sharpest competence gap

Methanol, ammonia, hydrogen, and LNG represent the most disruptive frontier in maritime training. Yet STCW does not yet adequately address these fuels.

In response, the industry, together with class societies and Original Equipment Manufacturers (OEM), is leading the way in new simulator models, Train-the-Trainer programmes, and equipment-specific operational protocols.

This shift reinforces a critical reality: industry-led competence development is no longer optional – It is *mission critical*.

Conclusion: the future of maritime competence is industry driven

Technology will continue to advance faster than regulation. Training institutions will continue to produce minimum-standard competence. Vetting systems will become more demanding, more transparent, and increasingly data-driven.

This leads to one unavoidable conclusion: **the only sustainable path to a safe, efficient, and future-ready fleet is through industry leadership in training and competence development.**

But as the saying from the Matrix movie goes, there is a difference between knowing the path and walking the path...

A Training Matrix – embedded within a broader, agile, analytics-powered competence ecosystem – represents the strongest strategic response for the decade ahead.

Companies that embrace this approach will lead the next era of maritime excellence. Those that do not risk being left behind.



TRAINING PROJECTS

PREPARING SEAFARERS FOR LNG AND ALTERNATIVE FUEL OPERATIONS

Marlow Navigation's dedicated training partner in Manila, United Marine Training Center (UMTC), together with Green Marine, officially welcomed the first batch of participants for the Basic and Advanced International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF) training, marking another milestone in its ongoing commitment to future-ready maritime education and training.

This intake follows the successful pilot class previously conducted at UMTC and forms part of the training centre's broader strategy to prepare seafarers with the knowledge, skills, and confidence required for the maritime industry's accelerating transition towards alternative fuels, decarbonisation, and next-generation ship technologies. As shipping continues to adopt cleaner energy solutions and meet increasingly stringent environmental regulations, specialised training has become essential to ensure both regulatory compliance and the safe operation of these evolving systems.

The IGF Code represents a critical framework in modern shipping, supporting the development of advanced engine technologies and the safe use of low-flashpoint fuels that significantly reduce greenhouse gas emissions, including CO₂, NO_x, SO_x, and particulate matter.

Since its adoption by the International Maritime Organization (IMO) and incorporation into the SOLAS Convention, IGF training has become a mandatory STCW requirement for seafarers serving on vessels powered by alternative fuels. Beyond compliance, it plays a vital role in enhancing onboard safety and mitigating the risks associated with handling these fuels.

As the industry transitions towards alternative fuels, specialised training is essential to manage the

increased operational complexities and risks involved, ensuring both safety and environmental protection, while supporting the sector's ambition to achieve net-zero CO₂ emissions by 2050.

The IGF course equips seafarers with the competencies required to safely handle low-flashpoint fuels such as LNG and methanol. Participants develop a thorough understanding of fuel properties, operational procedures, associated hazards, risk mitigation strategies, emergency response, and the environmental implications of improper handling.

"This course prepares seafarers to manage new fuel technologies safely, understand potential hazards, and respond effectively to emergencies such as fires or accidental fuel spills," said Head of IGF Training and LNG Consultant, Green Marine, Ericson Teruel.

Building on this initiative, UMTC and Green Marine are now jointly developing a comprehensive Maritime Alternative Fuels and Energy Systems Management Training Programme. Designed for both officers and ratings, the programme will equip seafarers with the technical knowledge, operational skills, and safety competencies required to safely and efficiently manage a broad range of next-generation marine fuel and energy technologies, including LNG, methanol, ammonia, hydrogen, and hybrid energy systems.

The programme will combine theoretical instruction with practical, industry-focused applications, ensuring participants gain both the understanding and hands-on competence required to operate emerging fuel technologies safely and effectively.

Supporting this development, UMTC is constructing a dedicated LNG and methanol bunkering skid to provide realistic practical training in bunkering operations and fuel handling procedures. Together, these developments will further strengthen UMTC's position as a leading regional training centre and an emerging international hub for alternative marine fuels and energy systems management training.

This partnership with Green Marine continues to bridge the gap between regulatory requirements and real-world ship operations, bringing together extensive engineering, operational, and training expertise across areas such as dual-fuel engine technologies, fuel system engineering, onboard troubleshooting, crew familiarisation, and safety management systems.

Early feedback from participants – crew for newly built dual-fuelled ship take overs – has been highly encouraging, with trainees highlighting increased confidence and understanding of alternative fuel operations, associated risks, and emergency procedures. As demand for low- and zero-carbon fuels continues to grow, initiatives such as these will play an increasingly important role in preparing seafarers for the future of sustainable shipping.

First Batch of IGF Training Launched at UMTC, Manila





“ This course prepares seafarers to manage new fuel technologies safely, understand potential hazards, and respond effectively to emergencies such as fires or accidental fuel spills. ”

KEY COMPETENCIES FROM BASIC AND ADVANCED IGF COURSES AT UMTC

Basic IGF

- Contribute to the safe operation of ships using low-flashpoint fuels
- Take precautions to prevent hazards
- Apply occupational health and safety procedures
- Respond effectively to emergencies

Advanced IGF

- Operate and monitor fuel systems
- Plan and conduct bunkering operations
- Manage fuel-related emergencies
- Ensure compliance with international regulations

TRAINING PROJECTS

STRENGTHENING MENTAL RESILIENCE AT SEA

Mental Health Awareness training has become an essential component of the curriculum at Marlow Navigation's dedicated training partner in Ukraine, Kherson Maritime Specialised Training Centre (KMSTC), reflecting the growing importance of mental wellbeing in the maritime profession.

A key feature of the course is its practical, real-world focus. Participants not only gain theoretical knowledge but are also encouraged to share personal experiences, creating an engaging learning environment closely aligned with the realities of life at sea.

The training covers a range of vital topics that help seafarers support themselves and colleagues in challenging situations, including maintaining calm and stabilising incidents, applying breathing and grounding techniques, communicating effectively with individuals experiencing mental distress, and recognising when professional support is required. Special attention is also given to identifying and managing professional burnout.

"A key contribution to the success of this course are the expert mental health instructors, Olena Bezlutska, Olena Herasymenko, and Iryna Fomina," explained KMSTC's Manager, Captain Sergiy Dudchenko. "Their dedication, deep understanding of psychological processes, and genuine engagement create an atmosphere of trust and openness."

"Combining high professional standards with empathy and emotional intelligence, they skilfully facilitate discussions on sensitive topics and help participants not only acquire knowledge, but also reflect on

their own experiences. This approach significantly enhances the effectiveness of the training," he added.

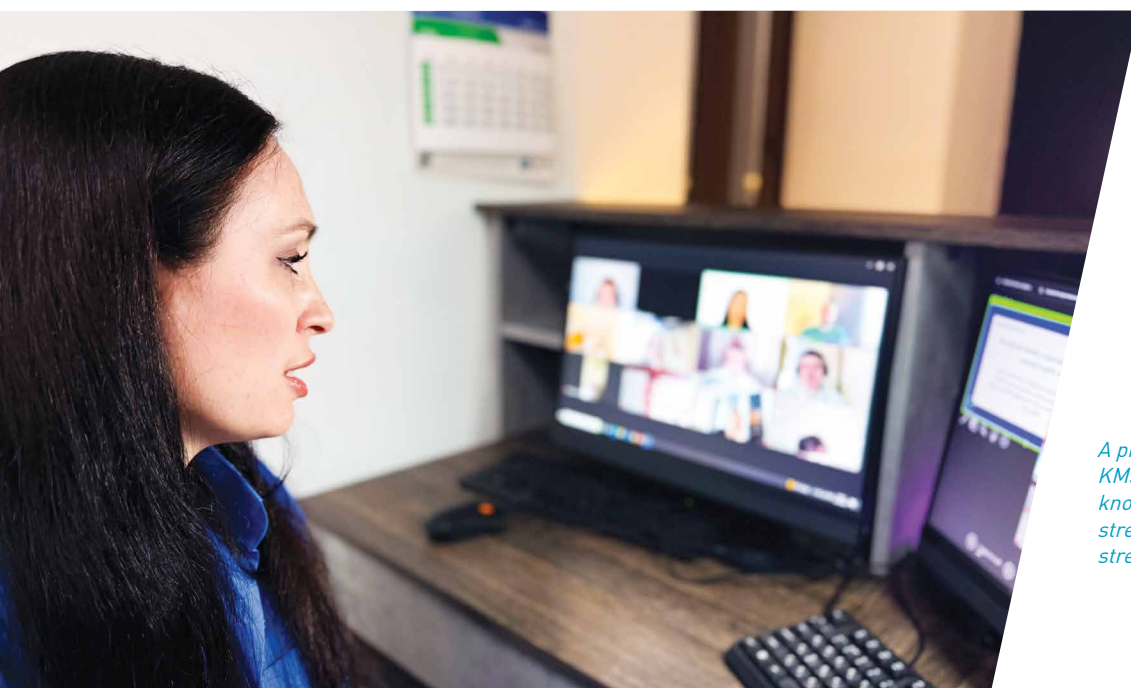
Seafarers not only face technical challenges at sea, but also considerable psychological pressures. Long periods away from home, isolation, demanding conditions, and the responsibilities of safety-critical roles can contribute to stress, anxiety, and fatigue. Extended contracts without adequate rest may also lead to emotional exhaustion, reduced concentration, and increased risk of conflict onboard.

"From the feedback we have received, it is clear that even highly experienced marine professionals are not immune to the psychological impact of demanding conditions at sea, highlighting the importance of awareness and timely support," Captain Dudchenko noted.

In recent years, seafarer mental health has gained increased attention across the maritime industry, recognising its direct impact on individual wellbeing, crew performance, and overall safety.

As a result, ongoing training initiatives such as this at KMSTC play a vital role in equipping seafarers with the ability to recognise early signs of mental strain, support one another, and access appropriate resources, helping to foster a safer, more resilient onboard environment.

Beyond knowledge, the course also serves as a platform for open dialogue and the development of a supportive onboard culture, directly contributing to crew safety and operational efficiency.



A practical training programme at KMSTC equips seafarers with the knowledge and tools to manage stress, support colleagues, and strengthen wellbeing at sea.

A new hands-on training course at UMTC enhances seafarer competence in the safe handling of timber deck cargoes.



SAFE LOG CARGO HANDLING PRACTICES

A new specialised course on the safe handling of log cargoes has been launched at Marlow Navigation's training partner, United Marine Training Center (UMTC), further strengthening training in cargo safety and operational best practices.

The two-day programme brings together deck officers and ratings, creating a collaborative learning environment that reflects real onboard operations and team dynamics.

Designed to equip seafarers with essential knowledge and practical skills, the course focuses on the safe, compliant, and efficient handling, stowage, and transportation of timber deck cargoes. Strong emphasis is placed on risk management, adherence to international regulations, and the application of best practices to safeguard both crew and cargo.

Training is aligned with key international frameworks, including the International Convention on Load Lines and the Code of Safe Practice for Ships Carrying Timber Deck Cargoes (2011 TDC Code), ensuring consistency with globally recognised standards.

The course combines structured classroom learning with immersive practical application. Theoretical modules cover cargo securing, stowage planning, and regulatory compliance, in line with relevant provisions of the STCW Code. These are followed by hands-on exercises, where participants apply their knowledge in realistic scenarios simulating onboard operations.

A key feature of the programme is the use of UMTC's newly developed log lashing facility, providing a safe and controlled environment for practising stowage and securing techniques. This enables participants to build both competence and confidence in handling timber deck cargoes in line with industry requirements.

This is particularly important given the high operational risks involved, including shifting cargo, heavy equipment handling, adverse weather exposure, and personnel safety during loading and securing operations.

The successful introduction of this course highlights UMTC's continued commitment to delivering relevant, standards-driven training that supports the professional development of seafarers.

As global shipping operations evolve, initiatives such as this ensure crews remain equipped with the competencies required to maintain safety, efficiency, and operational excellence at sea.



TRAINING PROJECTS

CLOUD-BASED BLACKOUT EMERGENCY RESPONSE TRAINING

A new Blackout Emergency Response Training Programme has been developed by Marlow Navigation's training partner in Ukraine, Kherson Maritime Specialised Training Centre (KMSTC), in cooperation with Wärtsilä Simulation.

The training programme addresses the increasing complexity of modern shipboard power systems, which has elevated the operational and safety risks associated with electrical power blackouts.

It combines instructor-led learning with cloud-based full mission engine room simulation to create a realistic, flexible, and highly effective training solution for marine engineers.

Designed primarily for officers in charge of an engineering watch, senior engineers, and electro-technical officers, the course delivers a structured blend of theory, real-world case analysis, and hands-on simulator exercises. It covers the full lifecycle of blackout scenarios, from understanding root causes and preventive operating modes to executing rapid and safe recovery procedures under operational pressure.

A central feature is the use of self-directed cloud simulation, enabling participants to practise realistic blackout scenarios outside the traditional simulator classroom. Using Wärtsilä's Engine Room Containerised Marine Engine (ECME) full mission model, based on a MAN B&W cam-less elec-

tronic two-stroke engine and power distribution system with high voltage switchboard, trainees interact with authentic ship power architectures similar to those found on large container vessels. These include systems comparable to those on the M/V *DALI*, involved in the contact incident with the Francis Scott Key Bridge in Baltimore (USA) in 2024.

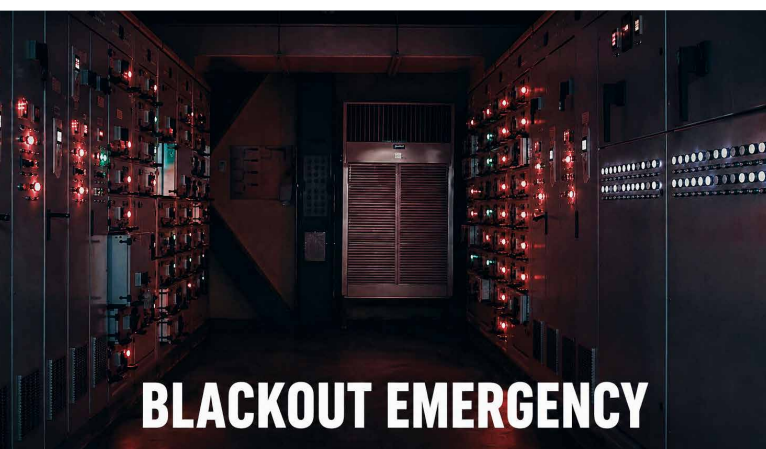
The course also explores different shipboard electrical power configurations, highlighting their operational strengths, limitations, and resilience. Participants examine the interdependencies between main and emergency power sources, auxiliary systems, diesel generators, propulsion, and automation – gaining a clear understanding of how partial or total blackouts can propagate across complex systems.

To further ground learning in real operational experience, the training analyses two to three major blackout incidents, including the widely reported M/V *DALI* case. These case studies examine power management system configuration, crew decision-making, repeated loss of power events, and the critical role of emergency generators and steering systems.

Training is delivered over two to three days and progresses from guided tutorial exercises to full scenario-based assessments. Participants first practise blackout recovery in a learning environment, followed by a formal assessment scenario that validates competency in prevention, diagnosis, power restoration, communication, and post-incident evaluation.

"By integrating cloud-based simulation, real incident analysis, and tailored blackout exercises, this programme sets a new benchmark for engineering emergency preparedness," explains Marlow's Training & Development Manager, Captain Martin Bankov.

"It equips marine engineers not only with advanced technical skills, but also with the situational awareness and decision-making confidence required to manage blackout emergencies safely – protecting vessels, crews, and critical operations in an increasingly demanding maritime environment," added Captain Bankov.



A new cloud-based simulation training programme at KMSTC in cooperation with Wärtsilä Simulation enhances marine engineers' ability to prevent and respond to complex blackout scenarios.

TRAINING PROJECTS

INNOVATIVE FIREFIGHTING TRAINING FOR THE SAFE TRANSPORT OF ELECTRIC VEHICLES

A unique firefighting training programme dedicated to seafarers and operators of vessels transporting electric vehicles (EVs) has been established in Poland – marking the first training of its kind globally.

The new three-day course, titled “Proficiency in Fire Fighting on PCTC, Ro-Ro & Ferries Course” is specifically designed for crew working on vessels carrying EVs.

The concept for the training originated during a seminar for Polish officers serving on PCTC vessels crew managed by Marlow Navigation, highlighting the growing need for specialised knowledge in this area. The programme has since been developed by Marlow Navigation Poland in cooperation with Inter Marine Group and the Port Fire Department (PSP Florian), and is certified by The Nautical Institute.

“This training project shows that it is possible to respond to industry challenges through collaboration and practical solutions,” said Managing Director at Marlow Poland, Piotr Masny. “It is a type of training that can directly impact the safety of both crew and vessel. In our industry, batteries are increasingly recognised as one of the key operational challenges in the years ahead,” he added.

Developed in response to emerging industry challenges, the programme is built on a key principle: crews must understand not only how to respond to incidents, but also when further action may no longer be safe. The training aims to raise awareness of the risks associated with transporting such cargo, while enhancing the safety of both navigation and onboard personnel.

The design of EVs differs significantly from that of conventional combustion engine vehicles, directly impacting firefighting operations. EV battery fires are

characterised by rapid onset, long duration, and difficulty in control, with a high potential for escalation. In practice, such incidents can endanger not only the cargo and the vessel, but, most importantly, the lives of the crew.

The training focuses on equipping participants with the knowledge and practical skills required to manage and contain incidents, including delaying escalation and implementing appropriate operational measures.

The course is structured into three parts. The first provides a theoretical foundation, covering battery technologies used in EVs. The second focuses on regulations and lessons learned from real-life incidents. The third, practical phase takes place at a dedicated PCTC training range, closely replicating onboard conditions.

Training is conducted in conditions as close to real-world scenarios as possible. A key feature is the dedicated training ground, which replicates shipboard environments using 1:1 scale mock-ups of vehicles and full firefighting infrastructure. As part of the project, PSP Florian developed a specialised simulator reproducing EV battery fire scenarios.

The training facility includes a vehicle deck equipped with fixed firefighting systems typical of PCTC vessels, a superstructure with stairways and escape routes, dual high-capacity water supply systems, and lighting that enables both day and night training. It also features 1:1 scale EV models arranged to reflect actual onboard configurations.

For safety reasons, certain exercises are conducted outdoors, focusing specifically on fire scenarios involving EV batteries.



Gdynia Inter Marine Training Centre – World first training programme for seafarers and ship operators of vessels transporting EVs launched in Poland

TRAINING PROJECTS

NAVIGATION COMPETENCE IN AN ERA OF UNCERTAINTY

Global satellite navigation systems and increasingly sophisticated bridge technologies have transformed modern ship operations, significantly enhancing efficiency, situational awareness, and navigational accuracy.

However, incidents involving GNSS degradation, GPS spoofing, signal jamming, and cyber interference have demonstrated that such systems are not infallible. In several regions worldwide, these are no longer theoretical concerns, but real operational challenges affecting the safety and reliability of navigation at sea.

Against this backdrop, the importance of strong fundamental navigational competence has once again come sharply into focus for training. In an era characterised by hybrid threats to free navigation, cyber risks, and increasing reliance on automation, deck officers must not only understand how technology supports navigation, but also when, why, and how it may fail.

At the same time, the maritime industry's accelerating digitalisation further reinforces the need for officers capable of critically assessing navigational information and maintaining safe operations even under degraded or disrupted conditions. True navigational competence ultimately lies in the ability to combine technology with sound professional judgement, situational awareness, and disciplined seamanship.

Recognising this, Marlow Navigation and its training partners continue to place strong emphasis on strengthening practical navigation skills amongst cadets and deck officers alike. Particular focus is given to manual position fixing, traditional navigation principles, bridge resource management, and critical decision-making, ensuring officers remain prepared to safely react and adapt in the

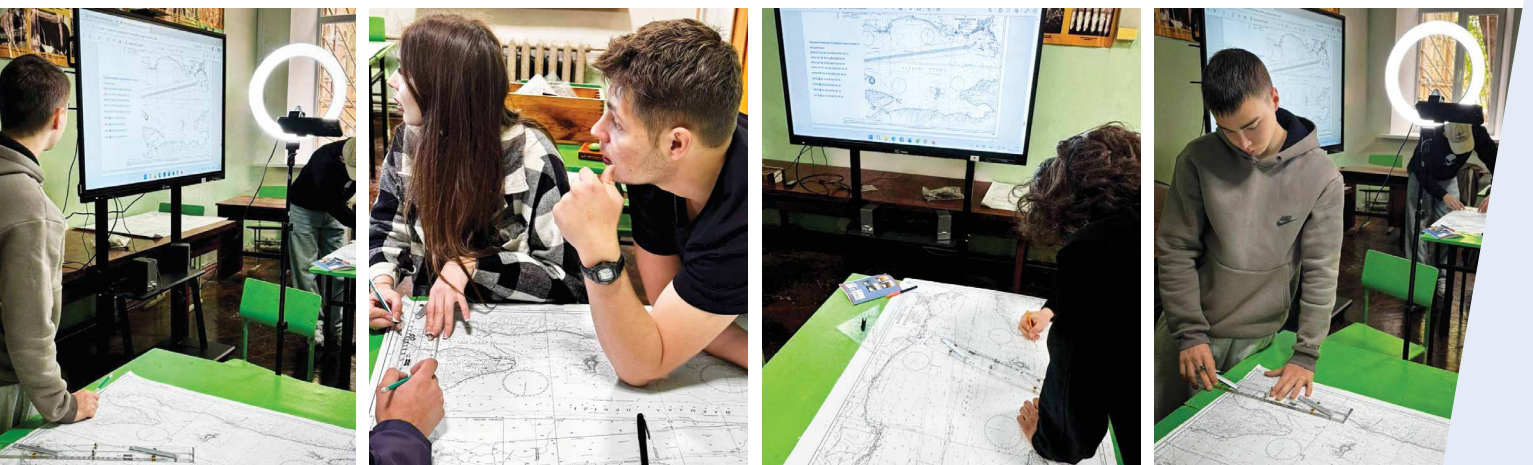
event of cyber incidents, equipment failures, or compromised navigation systems.

As part of these ongoing efforts, dedicated partner in Ukraine, Kherson State Maritime Academy (KSMA) continues to deliver essential navigation training to first-year cadets of the Navigation Faculty under the guidance of the Ship Handling Department. Despite the continuing challenges faced within the region, KSMA has maintained a resilient and adaptive approach to maritime education through a combination of onsite and online learning formats, ensuring continuity and accessibility of high-quality training.

The training approach integrates long-established maritime traditions with practical exercises and modern instructional methods, reinforcing both technical understanding and professional confidence. In parallel, further initiatives are also being explored within Marlow's wider training ecosystem to strengthen awareness and preparedness in areas such as maritime cyber security and navigation system vulnerabilities.

Importantly, these efforts are not about replacing technology, but about ensuring seafarers can continue to operate safely and effectively when technology alone cannot be relied upon. As the industry evolves, the role of the mariner remains central.

The dedication and motivation demonstrated by today's cadets serve as a strong reminder that professionalism, resilience, and core seamanship skills continue to underpin safe navigation. Investing in these competencies is not only an educational objective, but also a direct contribution to the long-term safety, sustainability, and operational resilience of global shipping.



Cadets strengthen essential navigational skills through practical training designed to prepare future deck officers for safe operations in increasingly complex and technology-driven maritime environments.

NEWLY INTRODUCED TRAINING CONTENT

(Instructor-led online training (ILOT), including webinars, AI supported eLearning, blended learning, as well as class-based training)

COURSE TITLE / DURATION

Stainless Steel Plate and Pipe Welding using GTAW	3 DAYS
European Cuisine Refresher Course	5 DAYS
Fundamentals of Professional Cookery	5 DAYS
Engine Room Management Simulator Course	5 DAYS
Basic Fabrication and Lathe Machine Operation	3 DAYS
Basic SMAW and TIG Welding	3 DAYS
Control Engineering and Automation Technology	6 DAYS
Electrical and Electronics Technology	8 DAYS
Electro-Hydraulics and Mechanical Systems	5 DAYS
Leadership and Teamworking Skills for ROV Pilots	2 DAYS
Marine Pollution Prevention and Environmental Awareness	1 DAY
Networking and Data Communications for ROVs	3 DAYS
Practical Workshop Skills for ROV Pilots	3 DAYS
ROV Maintenance and System Diagnostics	2 DAYS
ROV Operations and Piloting Techniques	2 DAYS
Operation of Wartsila RT-Flex Electronically Controlled Engines	5 DAYS
Aluminium Steel Welding Using SMAW	1 DAY
Copper Tube Brazing Course	1 DAY
Plasma Cutting Course	1 DAY
Fitter Training Programme	13 DAYS
BWEK Ship Simulator and Bridge Teamwork with Bridge Resource Management for Masters and Officers	5 DAYS
Chief Cook Competency Evaluation	1 DAY
Bulk Carrier Operation Course	5 DAYS
Gas Metal Arc Welding Training	MIN OF 1 DAY / MAX OF 5 DAYS
Gas Metal Arc Welding Pre Assessment	1 DAY
Gas Metal Arc Welding Trade Test	1 DAY
Chief Cook Course: Indian/Filipino Cuisine	5 DAYS
Shielded Metal Arc Welding with Plasma Cutting	5 DAYS
Confined Space Entry. Safe Work Permit & Risk Assessment Virtual Classroom	1 DAY

More information and full training course catalogues can be found via our partner training centres umtc.com.ph and kmstc.org

EQUIPMENT & FACILITIES

NEW SUPER FREEZER UNITS

The newly installed units at United Marine Training Center (UMTC) in Manila support training in the safe handling, operation, maintenance, and troubleshooting of advanced reefer container technologies. This includes Modified Atmosphere/Controlled Atmosphere (MA/CA), Automated Fresh Air Management (AFAM), and Super Freezer systems, helping seafarers develop practical competencies aligned with modern refrigerated cargo operations and evolving industry requirements.



EXPANDED FACILITY FOR ADVANCED MOORING OPERATIONS

UMTC has expanded and modernised its aft mooring station with a new split drum mooring winch to support an enhanced mooring operations training course tailored for deck crew members.

The training programme focuses on critical safety, operational efficiency, and practical skill development in mooring operations – one of the highest-risk activities on board vessels due to the heavy equipment, high line tensions, and dynamic working environment involved.

Through realistic and hands-on training, seafarers are better prepared to recognise hazards, apply safe working practices, improve teamwork and

communication, and respond effectively during mooring operations, helping to reduce the risk of incidents and injuries at sea.



MULTI-FUNCTIONAL TECHSIM NETWORK CLASSROOM SIMULATORS

TECH SIM – ERS with Future Fuels Models

The Wärtsilä TechSim Classroom Engine Room Simulator (ERS) at UMTC in Manila is designed to train marine engineer officers in the operation of auxiliary equipment and modern engine room systems. The simulator provides realistic representation of the user interface of engine room equipment, together with remote and local operating posts in animated 2D and 3D visualisation, enabling users to build complete situational awareness in a controlled training environment.

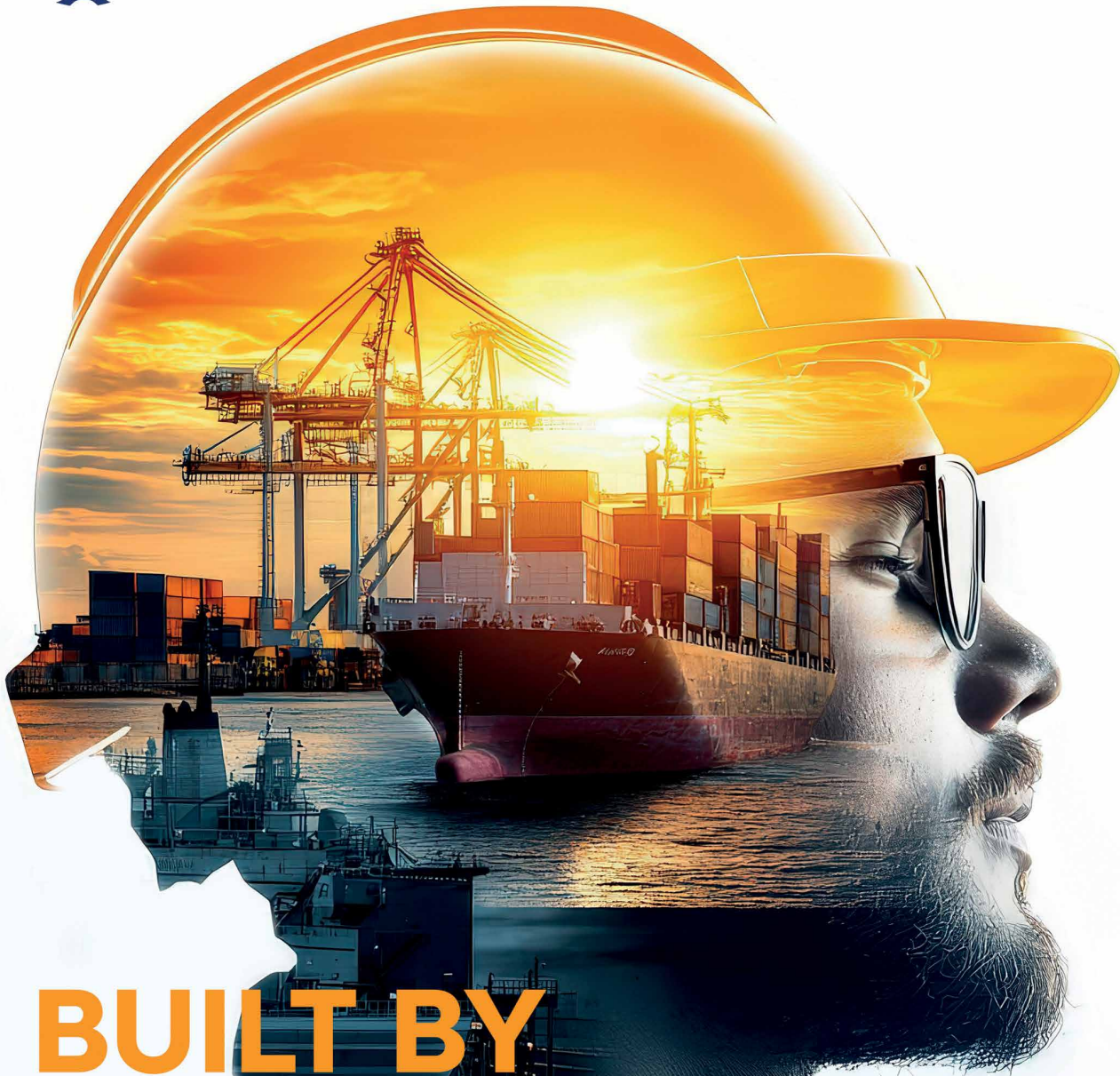
TECH SIM – LNG Bunkering

The Wärtsilä TechSim LNG Bunkering and Fuel Gas Supply System Simulator provides realistic representation of remote and local operating posts, supported by animated 3D visualisation for situational awareness training. The scope of the simulation model includes the Bunkering Station, Tank Connection Space with fuel gas preparation equipment, Dual Fuel Engines with Gas Valve Unit, Nitrogen System, Ventilation System, Gas and Fire Detection Systems, Process Control Automation System, and Safety System.





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TRAINING FOR THE TRANSITION: BUILDING THE HUMAN COMPETENCIES FOR DECARBONISATION

Anastasia Kouvertari is the Senior Lead, Human Competency for the Human Safety & Risk team of the Lloyd's Register Maritime Decarbonisation Hub (The Decarb Hub), with professional expertise in managing projects related to GHG emission reduction, new fuels adoption and workforce training for shipping's green transition. She represented The Decarb Hub as project manager in the "Baseline training for seafarers in decarbonisation" project led by the Maritime Just Transition Taskforce, the first global sectoral task force dedicated to a just transition for the maritime industry.

Anastasia first joined Lloyd's Register (LR) in 2004, holding several positions as environmental specialist, product manager and project manager in LR's Marine & Offshore business. She holds a Master of Science in Environment & Development from the London School of Economics and Political Science (LSE) and is an Associate Member with the Institute of Environmental Management and Assessment (IEMA).

Lloyd's Register Group also incorporates Ocean Technologies Group (OTG), whose Ocean Learning Platform is utilised by Marlow Navigation for global seafarer training.



As the maritime industry accelerates towards decarbonisation, alternative fuels, and increasingly complex ship technologies, the transition is no longer only technical, it is equally a workforce and competency challenge. Safe adoption of new fuels and systems will depend heavily on the preparedness of seafarers, instructors, and maritime education institutions worldwide.

In this year's Analysis, Senior Lead, Human Competency at Lloyd's Register Maritime Decarbonisation Hub,

Anastasia Kouvertari examines the growing importance of alternative fuel training frameworks, instructor development, and human-centred learning ecosystems in supporting shipping's transition towards a safer and more sustainable future. The article explores the evolving regulatory landscape, the role of the Maritime Just Transition Task Force (MJTTF), and why strengthening the global trainer pipeline will be essential for scaling maritime decarbonisation safely and effectively.

“Alternative fuels and new technologies cannot be scaled safely without a workforce trained for new hazards, risk profiles, and operational complexities.”

Reinforcing the message that decarbonisation is also a workforce transition at a global scale

Shipping's energy transition is characterised by competing fuel pathways, geopolitical turbulence, and uneven regulatory interpretations, often leading to fragmentation. Nevertheless, crew readiness remains the cornerstone for safe maritime operations, and with the move toward zero- and near-zero (ZNZ) emission fuels this focus has only deepened.

The International Maritime Organization (IMO) has developed safety and training provisions in parallel, demonstrating its stance that alternative fuels and new technologies cannot be scaled safely without a workforce that is trained for new hazards, risk profiles and operational complexities.

Since January 2017, the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code) offers the main competency development regulatory structure at a basic and advanced level, initially focusing on LNG. Building on the LNG-centric legacy and the related model courses for ships subject to the IGF Code, the IMO sponsored a training project led by the UN Global Compact (UNGC), in collaboration with the International Chamber of Shipping (ICS), the International Transport Workers' Federation (ITF), Lloyd's Register's Maritime Decarbonisation Hub (The Decarb Hub), and the World Maritime University (WMU) to draft interim training frameworks for ammonia, methanol and hydrogen as marine fuels.

In September 2025, the Maritime Just Transition Task Force (MJTTF) launched a series of reports on the first-ever cross-industry training frameworks, which focus on the Knowledge, Understanding and Proficiencies (KUPs) of seafarers working on vessels powered by ammonia, methanol and hydrogen. This marked a major step forward in preparing the global maritime workforce for the future while reinforcing the mission of 'Engineering Safer Skills for Alternative Fuels' of the Lloyd's Register's Foundation, which funded the MJTTF training project.

The project's outputs, now publicly available at www.mjtff.org, are based on more than 500 technical considerations collected through global risk assessment sessions and industry workshops involving more than 100 stakeholders. They comprise learning materials covering foundational knowledge across ammonia, methanol, and hydrogen, as well as advanced knowledge tailored to the risk profile of each molecule.

The MJTTF training project also produced familiarisation guidelines for personnel, both onboard and ashore, who are not covered by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention). This

broadened the project's value by helping safeguard the maritime workforce irrespective of role and function.

From a regulator's perspective, the IMO adopted the 'Generic interim guidelines on training for seafarers on ships using alternative fuels and new technologies', issued as STCW.7/Circ.25 in September 2025, based on competencies identified through the MJTTF training project. These were finalised at the 11th session of the IMO Sub-Committee for Human Element, Training and Watchkeeping (HTW 11) in February 2025 and were further approved at the 110th session of the Maritime Safety Committee (MSC 110) in June 2025; making them mandatory under the IMO.

This Circular now provides a common international reference for developing and approving training provisions through to 2031, where more alternative fuels and new technologies will be examined by mandated Correspondence Groups to define the competencies and skillsets necessary for safe deployment on board.

For each fuel, interim IMO instruments addressing safety considerations already exist for methyl/ethyl alcohol and ammonia. On training, HTW 12 (February 2026) finalised draft interim training guidelines for methyl/ethyl alcohol and ammonia, confirming a sequenced approach in which generic guidance is followed by fuel-specific guidance. This supports harmonisation while recognising the rapid pace of technological development.

These developments in safety and training are key, as workforce readiness is already stretched. ICS and BIMCO project a shortfall of up to 90,000 officers by 2026. This figure does not account for the additional upskilling required to manage dual fuel engines, new onboard systems, digital technologies and sensors, and increasingly complex safety protocols.

MJTTF responded to this shift in training needs by launching the world's first Train-the-Trainer course in April 2025 in Shanghai, through the Global Maritime Technology Cooperation Centres Network (GMN). The IMO's Train-the-Trainer programme on alternative fuels began with a first cohort of 35 participants, hosted by Shanghai Maritime University (MTCC-Asia) and implemented by the World Maritime University (WMU).

The programme applied classroom-based training on ammonia, methanol and hydrogen with pedagogical tools and scenariobased learning insights to achieve the highest learning outcomes possible.

The importance of immersive and simulation-based training reveals a gap in the skills and education debate; instructors need hands-on training and be qualified to train cadets and senior officers beyond traditional maritime training models.

ANALYSIS

Building a pluralistic maritime skills ecosystem at a European level

Since 2025, Europe has led the maritime training reform by advancing a pluralistic approach to workforce development that extends beyond technical skills to include digitalisation, inclusion, and long-term human capital resilience through mentoring.

This direction is reflected in the three distinct workstreams of the European Maritime Skills Forum (EMSF), green, digital and leadership skills, which support collaboration between its regional social partners, the European Community Shipowners' Associations (ECSA) and the European Transport Workers' Federation (ETF).

The initiative seeks to modernise maritime education through the Maritime Education and Training Network (MET-NET), responding to the growing workforce challenge highlighted by the Draghi Report, which identified a skills gap of nearly 250,000 seafarers by 2030 to support shipping's decarbonisation transition.

Despite increasing momentum around curricula, interim IMO guidance, and competency frameworks, a fundamental implementation gap remains with regards to qualified instructors. Training standards can only be operationalised effectively if maritime education and training (MET) institutions have enough instructor capacity to lead both classroom-based programmes and immersive training modules. Europe has committed itself to closing this gap to ensure safe, consistent delivery of competencies at scale and to secure its competitiveness in the global maritime sector.

The shortage of trained instructors is becoming a strategic challenge as alternative fuels and new technologies evolve rapidly. Competencies linked to ammonia, methanol, hydrogen, battery systems, digital operations, and integrated safety management require instructors who are not only technically competent, but also capable of leading multidisciplinary and human-centred learning environments. Europe's training agenda is therefore evolving into a broader skills ecosystem that combines operational expertise with digital literacy, leadership capability, and organisational resilience.

Within this context, Europe has a unique opportunity to merge the regulatory mandate of the IMO with lessons from the Train-the-Trainer pilot programme.

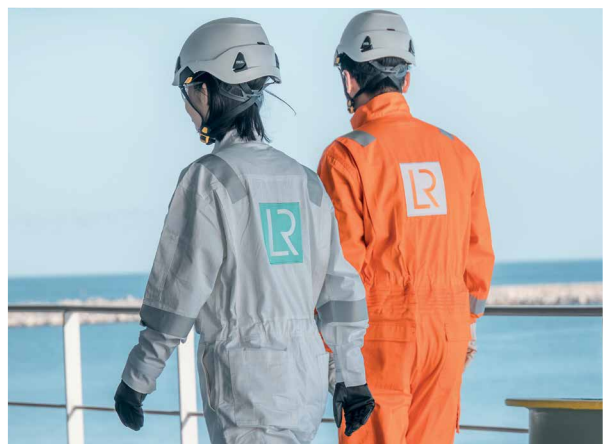
As a region, it can offer a variety of cluster-based education ecosystems, including port hubs, maritime universities, simulator centres, and MET-NET partnerships, to provide practical environments where harmonised, fuel-specific training approaches can be piloted and further refined ahead of their integration into the revised STCW Convention.

Alongside the challenge of broadening its instructor talent pipeline, Europe also has an opportunity to take a leading role in promoting diversity. One of the clearest opportunities lies in increasing the participation of women not only as seafarers, but also as instructors, assessors, and academic leaders within the MET-NET cluster. Expanding women's representation within training faculties would increase delivery capacity while strengthening mentoring structures, inclusiveness, and the wider learning culture across the industry.

A visionary outlook to 2030

The maritime sector has an opportunity to build on the IGF/LNG training legacy, emerging IMO interim guidelines, the MJTTF instructor handbooks, and Europe's wider skills agenda. However, challenges remain in training qualified instructors, assessing training effectiveness, investing in accessible training infrastructure, and addressing gender imbalances beyond operational roles.

Ultimately, maritime decarbonisation will require technological and workforce transitions to progress together. Europe's strength lies in recognising that future competitiveness depends not only on ships, fuels, and infrastructure, but also on developing a human-centred maritime skills ecosystem capable of supporting the transition at scale.



“Future competitiveness in shipping will depend not only on fuels and infrastructure, but on building a resilient, skilled, and adaptable maritime workforce.”

POLAR COURSES

C002

BASIC TRAINING

Provides essential knowledge and skills for Masters and Navigation Officers to safely operate ships in polar waters, following international standards (STCW and IMO) and meeting minimum requirements for safety and pollution prevention.

C003

ADVANCED TRAINING

Builds on basic training with advanced knowledge and practical skills for complex operations in polar waters. Focuses on decision-making, risk management and leadership in extreme conditions.



Classroom at MTC Hamburg



Ship Handling Simulator (WÄRTSILÄ) at NACOS MARINE ACADEMY, Hamburg



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IN EXTREME CONDITIONS**



**MEET STCW POLAR CODE
REQUIREMENTS**



**ENHANCE SAFETY &
ENVIRONMENTAL PROTECTION**



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FACTS & FIGURES

DRIVING MARITIME EXCELLENCE THROUGH TRAINING AND FUTURE TALENT DEVELOPMENT

Against a backdrop of rapid technological change, increasing ship automations, decarbonisation pressures, and evolving regulatory requirements, demand for proficient, highly skilled, and adaptable maritime professionals continues to intensify. Crew training and competence development remain a strategic priority across Marlow Navigation's global operations, with overall Key Performance Indicators (KPIs) reflecting continued stability, maturity, and sustainable growth.

Total training course attendances for upgrading and proficiency development at Marlow reached 148,829 in the past year, comprising 14,116 attendances at training centres and 134,713 online (see figure 1.1). While overall activity levels remained broadly stable compared to the previous year, this reflects a more balanced and consolidated training environment following several years of accelerated post-pandemic growth and digital expansion.

Online learning continues to play a central role within the Marlow Training Matrix, supported by our established Learning Management System (LMS) and wider digital training ecosystem. At the same time, there is sustained emphasis on practical, classroom, simulator, and workshop-based learning, recognising that blended learning methodologies now represent the most effective approach for modern maritime training. This integrated model allows training to address both traditional operational competencies and the increasingly important digital, environmental, and human element skills now required on board modern vessels.

Continued focus was placed on competence development in areas such as automation awareness, environmental

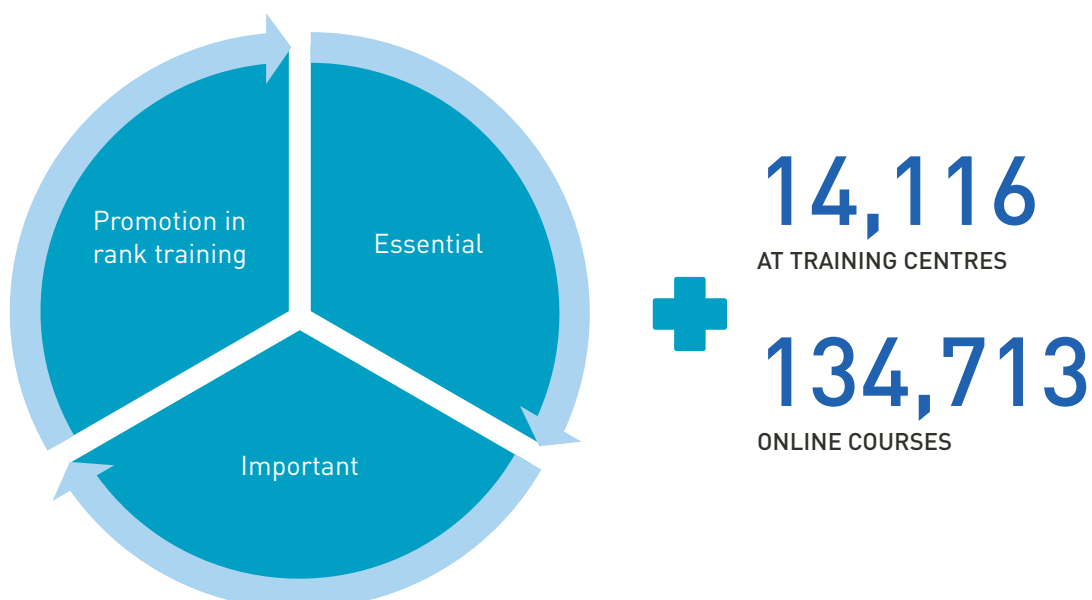
compliance, alternative fuels, safety culture, leadership, and critical decision-making. Soft skills and human factors also remained a strong area of attention, particularly as modern ship operations become increasingly data-driven, technologically advanced, and operationally complex. Skills such as adaptability, communication, resilience, teamwork, situational awareness, and problem-solving are recognised as essential competencies for the future maritime workforce.

Meanwhile, the total number of active seafarers from Marlow training programmes increased further to 5,237 (figure 1.2), reflecting continued diversification and stable recruitment activities across our global operations. The diversity of seafarer nationalities participating in our programmes remains one of the organisation's core strengths, supporting both operational flexibility and the evolving requirements of our international client base.

The percentage of officers on board originating from Marlow training programmes has shown some good growth, which we forecast should continue over the coming years (figure 1.3). Expectations are to reach approximately 36% in 2027 and over 37% in 2028, while maintaining the longer-term objective of achieving around 40% representation. This continued progression is supported by our structured cadet and officer development programmes, particularly in key locations the Philippines and Ukraine, but also other countries, strong seafarer retention levels, and dedicated promotion pathways across both deck and engine departments.

UPGRADING TRAINING TOTAL COURSE ATTENDANCES IN 2025

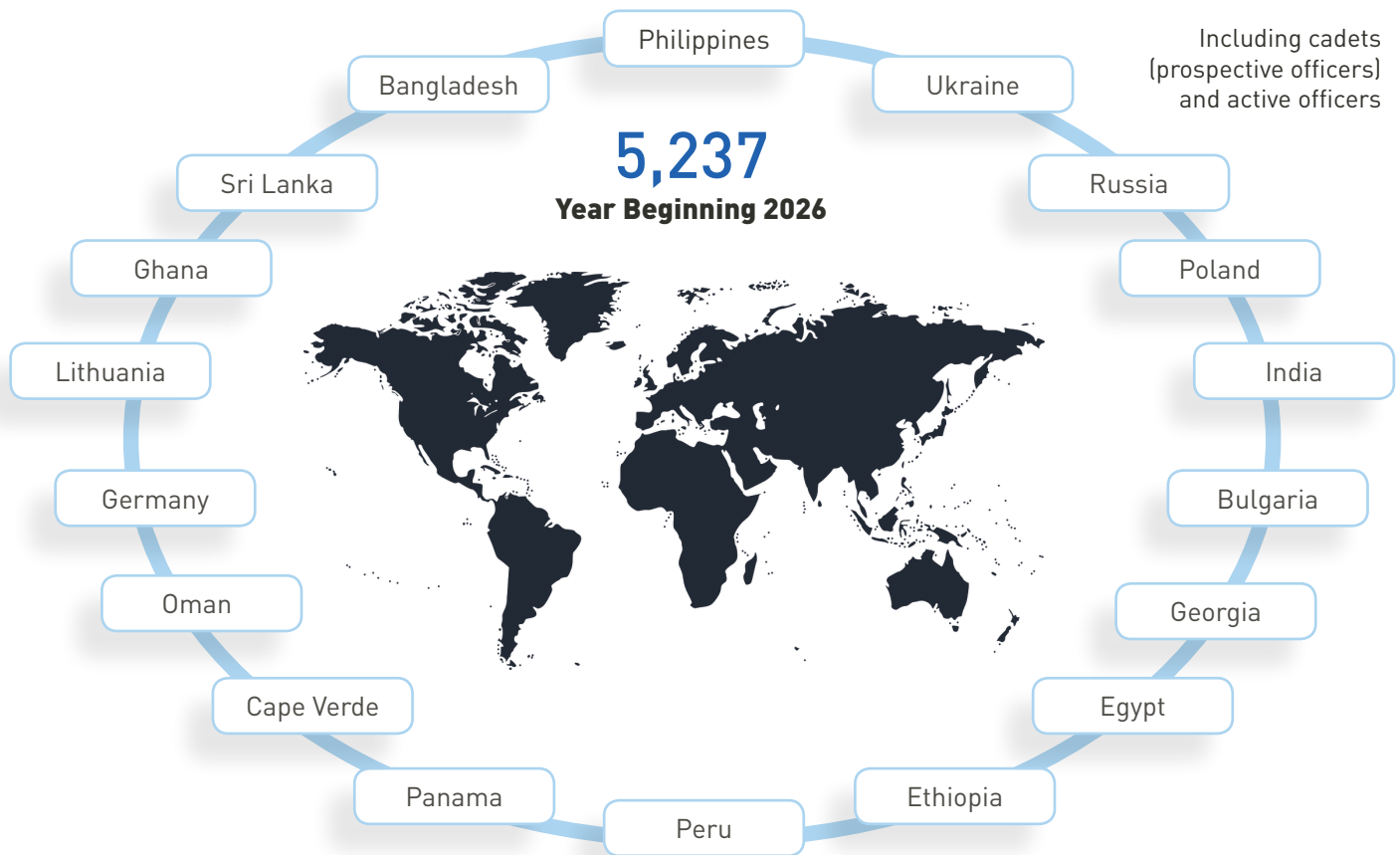
Fig. 1.1



FACTS & FIGURES

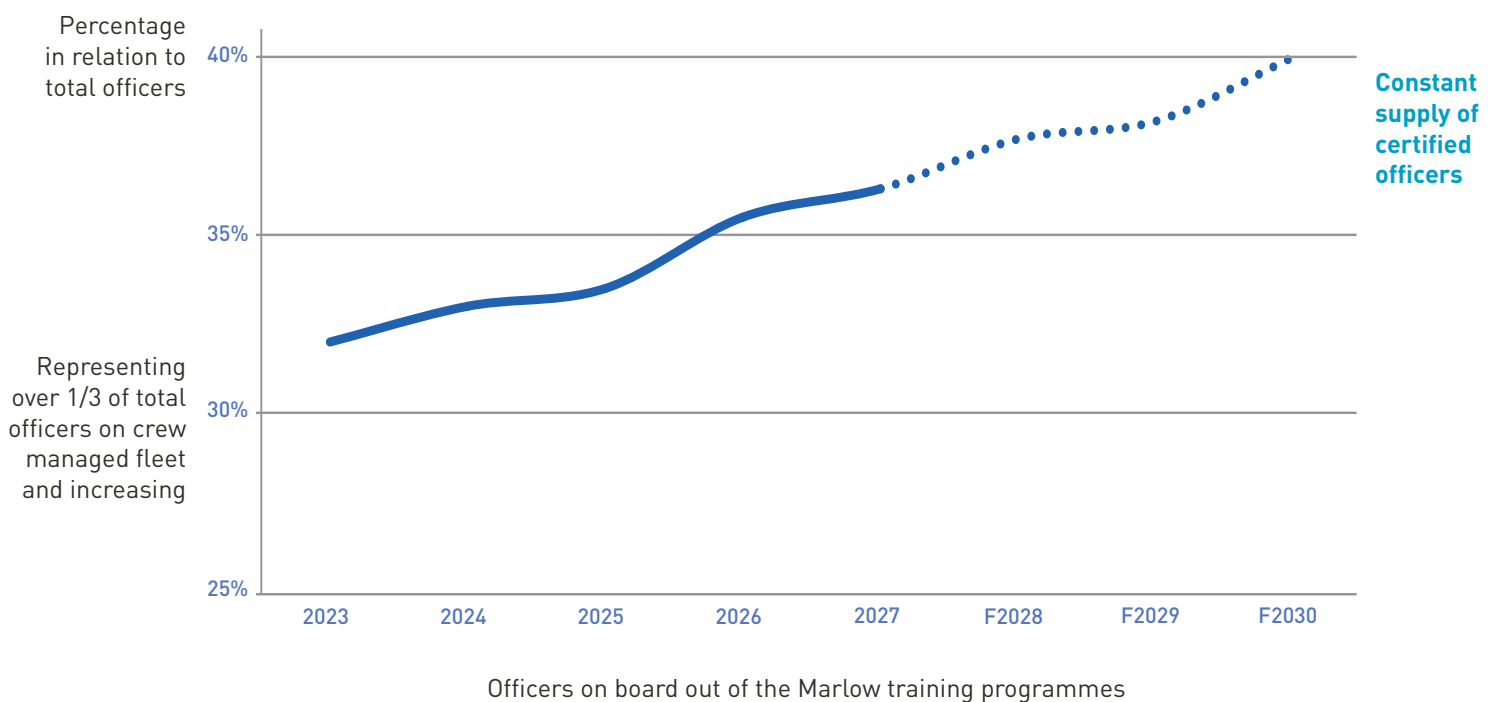
ACTIVE SEAFARERS OUT OF TRAINING PROGRAMME PROMOTING CREW DIVERSITY

Fig. 1.2



OFFICERS ON BOARD OUT OF TRAINING PROGRAMME

Fig. 1.3



FACTS & FIGURES

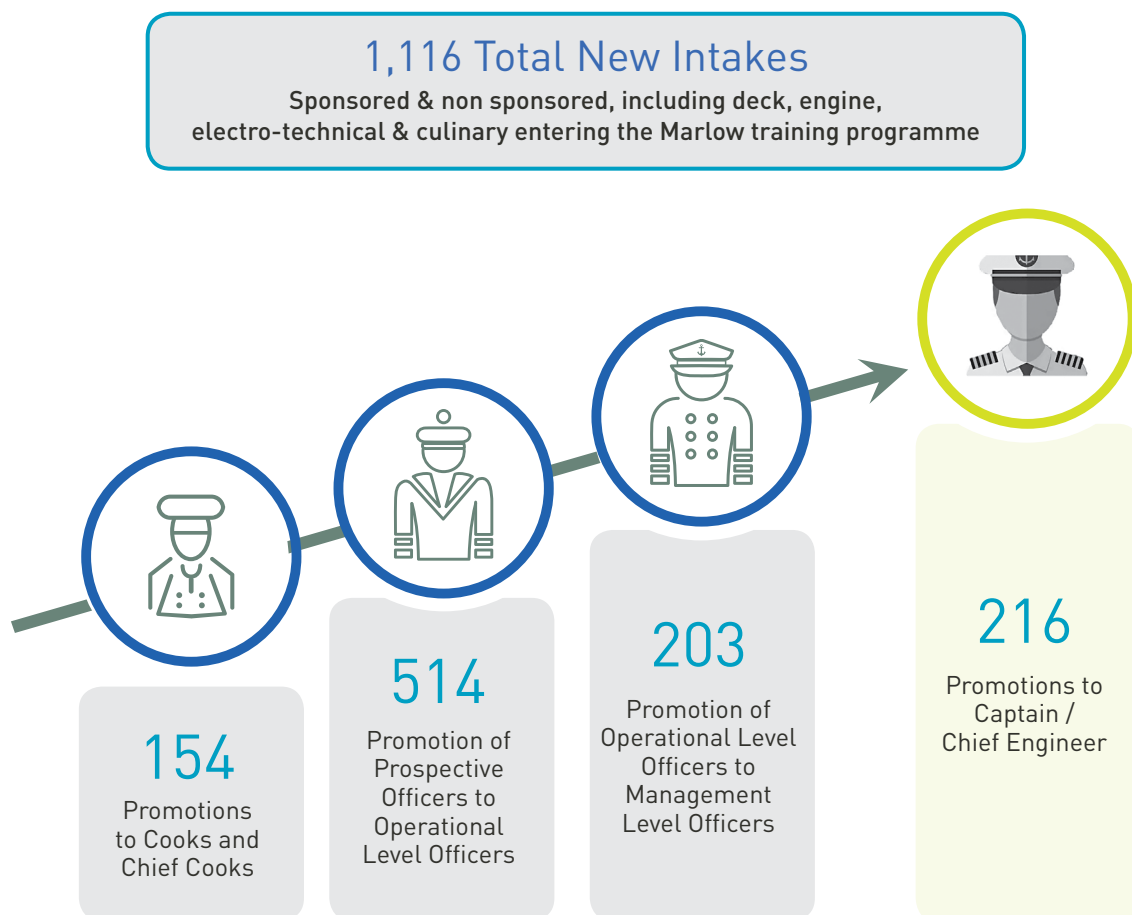
Our dedicated training and career development programmes continued to produce strong and consistent results (**figure 1.4**). There were 514 promotions of Prospective Officers to Operational Level Officers, alongside 203 promotions from Operational to Management Level. Meanwhile, 216 officers progressed into senior management positions as Captains and Chief Engineers, whilst a further 154 promotions were recorded for Cooks and Chief Cooks. Total new intakes remained stable at 1,116, demonstrating our continued long-term commitment to developing future maritime talent via a controlled, well-established system that combines structured training and practical sea-going experience.

Looking ahead, the maritime industry's accelerating transition towards digitalisation, automation, decarbonisation and new fuels will continue to reshape competency requirements across all ranks and vessel types. As such, ongoing investment in training infrastructure, equipment and facilities, instructor development, and blended learning systems will remain essential at Marlow for supporting continuous proficiency development.

Ultimately, the long-term sustainability, safety, and operational excellence of both our services and the wider maritime industry will increasingly depend not only on technology itself, but on the competence, adaptability, and professionalism of the people operating it.

MARLOW DEDICATED TRAINING & CAREER DEVELOPMENT 2025

Fig. 1.4



Training initiatives; investing in human capital

INTERVIEW

SHAPING THE NEXT GENERATION OF MARITIME TRAINING

In this year's journal, we speak with recently appointed **Training Director at United Marine Training Center (UMTC) in Manila, Roy Akker**, about the evolving landscape of maritime education and training, and how training institutions must adapt to meet the demands of a rapidly changing industry.

With over two decades of experience in the Philippines and a diverse career spanning seagoing service, maritime training, business development, marine insurance, and international relations, Roy brings a well-rounded industry perspective to his role. A graduate in both Marine Transportation and Marine Engineering, he holds a Master Mariner (All Ships) license as well as an Engineer Officer qualification.

Before taking on his current position, Roy held senior leadership roles across training and maritime organisations, and remains actively engaged in the wider business community as President of the Dutch Chamber of Commerce in the Philippines. Drawing on this broad experience, he shares his insights on training quality, instructor development, digitalisation, and the growing importance of the human element in preparing seafarers for the future.



Training Director, United Marine Training Center (UTMC), Roy Akker

1 To begin, could you tell us about your new role as Training Director at UMTC, and what your key priorities and goals are within the training centre?

I'm very excited to take on the role of Training Director. For me, it's more than just a position; it's an opportunity to help shape an environment that promotes growth, innovation, and excellence across maritime training programmes.

My focus, and commitment, is on supporting our faculty while driving the development, implementa-

tion, and continuous improvement of training that meets the evolving needs of the maritime industry. At the same time, I'm keen to contribute to the wider training sector by introducing new concepts and approaches that further enhance both the skills and motivation of seafarers.

As we continue to uphold our "Centre of Excellence" status here at UMTC, a key priority is to inspire our team to build on their strong foundations, maintaining the high standards and consistency we are known for, and exceeding expectations for both the marine professionals we train and the clients we serve.



ARTA (Anti Red Tape Authority) MOA signing between the Dutch Chamber of Commerce (DCCP) in the Philippines, represented by President Roy Akker and Executive Vice President Tom van der Meulen, with ARTA's Secretary Ernesto V. Perez, and in the presence of State Secretary for Foreign Trade and Development of the Kingdom of the Netherlands, Her Excellency Aukje de Vries and Ambassador of the Kingdom of the Netherlands to the Philippines, Her Excellency Marielle Geraedts.

INTERVIEW

2 In your role, you are also responsible for academic quality and development at UMTC. How do these areas contribute to maintaining high training standards and supporting a more sustainable, future-ready maritime industry?

Academic quality and development play a central role in maintaining high training standards and ensuring programmes remain relevant to the industry.

By continuously reviewing and improving our curriculum and delivery, we can integrate new technologies, respond to evolving regulations, and align with emerging operational demands. This ensures that training is not only compliant, robust and relevant, but also practical and forward-looking.

At the same time, close collaboration with our clients and industry partners helps ensure our programmes reflect real-world requirements, supporting the development of competent, adaptable seafarers. Ultimately, this contributes to a more sustainable and future-ready maritime workforce.

3 From your perspective, what are the key elements that define “high-quality” maritime education and training today, and how have these expectations evolved in recent years?

Aligned with international standards, high-quality maritime education and training today is defined by its ability to develop real competence, ensuring that seafarers are not only knowledgeable and skilled, but also fully capable of performing their duties safely, effectively, and with confidence.

A key element is the balance between theory and practice. Blended learning approaches, supported by simulators, real-world scenarios, and onboard training, are essential to bridge this gap and reflect actual operational conditions at sea.

Equally important is the strong focus on safety, compliance, and the human element. This includes not only technical proficiency, but also soft skills such as leadership, communication, critical thinking, and decision-making, which are increasingly vital in complex, high-risk environments.

In recent years, expectations have evolved significantly. Training is now more dynamic and technology-driven, with greater use of digital platforms, advanced simulation, and data-based assessment. At the same time, there is a stronger emphasis on adaptability and continuous learning, ensuring seafarers can keep pace with rapid changes in areas such as digitalisation, automation, and environmental regulations.

Ultimately, high-quality training today is about preparing competent, responsible, and adaptable maritime professionals for both current and future challenges.

4 What do you see as the main challenges currently facing maritime education and training, particularly in major seafarer-supplying countries such as the Philippines and beyond?

One of the key challenges is keeping pace with the rapid evolution of the global industry. For instance, with technological advancements, digitalisation, ship automations, alternative fuels, and increasingly sophisticated vessels. These all require continuous updates in training methodologies, equipment and facilities, as well as instructor qualifications and capabilities.

We must be proactive and already prepare for such changes, and importantly, collaborate closely with the industry to successfully integrate.

The challenge lies in maintaining high training quality and in line with standards, while continuously adapting to these technological, regulatory, and environmental changes, ensuring seafarers remain competent, competitive, and well-prepared for the future.

5 How is UMTC positioned to address these challenges and support the development of future maritime talent?

UMTC has built strong foundations over nearly three decades. Our long-standing and close collaboration with shipping companies and industry partners ensures that training programmes remain relevant and responsive to real operational needs.

At the same time, ongoing investment in modern facilities and state-of-the-art equipment, including advanced simulators, practical workspaces, and digital learning platforms, enables us to keep pace with industry developments and evolving vessel operations.

A key strength is our focus on instructor development and robust quality management systems, which help maintain consistent training standards across all programmes. Combined with our commitment to international standards, this allows us to continuously update curricula in line with regulatory changes, decarbonisation trends, and emerging technologies in shipping.

Together, these elements position UMTC to effectively support the development of competent, adaptable, and future-ready maritime professionals, while meeting the evolving needs of our clients.



Roy as Navigation Officer M/S Prinsedam Capetown, South Africa at the Waterfront

INTERVIEW

6 How do you ensure consistent training standards across instructors, programmes, and delivery methods, while continuously improving curricula to remain aligned with evolving industry requirements and international maritime standards?

Our instructors play a vital role in ensuring consistency in training standards. A rigorous hiring process, combined with continuous instructor development, ensures our faculty are not only technically competent, but also effective in delivering high-quality training across different formats.

At UMTC, we support this with a structured monitoring and feedback system, assessing trainee performance, evaluating instructors, and gathering input from clients and stakeholders. This allows us to measure effectiveness and identify areas for improvement.

At the same time, we foster an environment where instructors take ownership of their courses. This strengthens engagement and accountability, while helping ensure content remains current, aligned with international standards, and delivered at a consistently high quality. Regular curriculum reviews further support this by incorporating regulatory updates, technological advancements, and evolving operational, and client requirements.

7 How have competency requirements for seafarers evolved in recent years, and how must training programmes adapt to ensure graduates and seafarers alike remain industry- and future-ready?

Competency requirements for seafarers have evolved significantly in recent years, driven by rapid technological advancements, stricter regulatory frameworks, and the industry's shift towards sustainability.

While the traditional focus on technical proficiency and compliance remains essential, there is now a broader expectation for seafarers to demonstrate strong competencies in other areas, such as digital capabilities, an understanding of automations, environmental awareness, and a well-developed safety and risk management mindset.

At the same time, human element soft skills are becoming increasingly important – particularly adaptability, critical thinking, communication, and decision-making in complex and high-pressure situations.

Training programmes must therefore become more dynamic and competency-based, keeping pace with

regulatory changes, emerging technologies and other industry trends. More importantly, they need to go beyond knowledge transfer and focus on developing well-rounded, adaptable maritime professionals who can confidently navigate the demands of a rapidly evolving maritime industry.

8 Indeed, digitalisation continues to reshape maritime training. How do you see the balance evolving between simulator-based, classroom, and online learning environments?

Digitalisation is significantly reshaping maritime training, driven in large part by the increasing complexity of modern ship technologies, automation, and data-driven operations. As a result, training must evolve to reflect both traditional competencies and new digital skill requirements.

Simulator-based training remains essential for developing practical skills and decision-making in realistic, controlled environments, particularly for complex and high-risk scenarios. Classroom learning continues to play a vital role in building foundational knowledge and enabling direct interaction and discussion.

At the same time, online learning is becoming an increasingly important component, offering flexibility, accessibility, and the ability to prepare seafarers in advance of practical training through theoretical modules and digital content.

The way forward is a well-balanced, flexible, blended learning approach, integrating classroom, simulator, practical, and online environments into a cohesive training journey. This not only enhances learning outcomes, but also ensures seafarers are equipped with both core competencies and the digital skills required for modern vessel operations.



Roy at Memorandum of Agreement (MOA) signing between UMTC and UNITOR

“By continuously reviewing and improving our curriculum and delivery, we can integrate new technologies, respond to evolving regulations, and align with emerging operational demands. This ensures that training is not only compliant, robust and relevant, but also practical and forward-looking.”

INTERVIEW

9 In your experience, what are the most effective ways to assess competence and ensure successful learning outcomes in such increasingly blended or digital training environments?

The most effective approach is a combination of assessment methods that reflect both knowledge and real operational competence. Scenario-based assessments, particularly using simulators, are essential for evaluating decision-making, situational awareness, and performance under pressure. These are complemented by continuous evaluation through quizzes, exams, and digital platform analytics, which help track progress and identify gaps.

Instructor observation and structured feedback also remain critical, especially in assessing practical skills and behavioural competencies. Ultimately, combining digital tools with hands-on assessment ensures that learning outcomes are not only achieved, but that true, demonstrable competence is developed.

10 Going back to the “human element”, while technical competencies continue to advance and remain critical, which soft skills do you believe are becoming even more important for seafarers in today’s environment, and how should these be embedded into training?

As technical competencies continue to advance, the human element is becoming even more critical in the maritime industry. Today, essential soft skills for seafarers include adaptability, critical thinking, decision-making, leadership, teamwork, and effective communication, alongside growing digital awareness. These enable seafarers to operate increasingly automated ship systems, respond to evolving environmental requirements, and safely manage the complexities of alternative fuels and modern operations.

These skills are particularly important in a complex, multicultural, and safety-critical working environment, where clear communication and sound judgement can directly impact operational safety.

Situational awareness and resilience are also becoming increasingly vital, especially as seafarers navigate rapid technological change, evolving environmental requirements, and broader global challenges.

To be effective, these skills must be embedded into training and development through practical scenarios, teamwork-based exercises, leadership development, and real-life case studies, ensuring they are not only understood, but consistently applied in real-world operations.

11 Looking ahead, how should training institutions prepare cadets, and more experienced maritime professionals for that matter, for emerging challenges such as decarbonisation, new fuels, and increased onboard automation?

We must remain proactive and forward-looking in our approach, ensuring we are always prepared for change and that our training remains aligned with real onboard needs and global standards.

This starts with regularly reviewing and updating curricula to reflect industry developments and client requirements, maintaining close collaboration with industry, and investing in our instructors, delivery methods, and training facilities. This includes an increasing emphasis on practical, scenario-based training, enabling seafarers to safely familiarise themselves with new technologies and operational risks.

For more experienced professionals, flexible learning pathways and continuous upskilling are essential to support lifelong development and adaptability. For cadets, structured and engaged learning environments remain key, while also adapting approaches to meet the expectations, motivations, and evolving skillsets of newer generations. And with both, we must continue to foster a mindset of ongoing learning and proficiency development.

12 Finally, what advice would you give to young cadets – and to maritime educators and shipping companies – on staying adaptable and maintaining excellence in such a rapidly evolving industry?

My advice to young cadets, maritime educators, instructors, and shipping companies centres on one key principle: embrace continuous learning and adaptability as a mindset, not just a requirement.

For cadets: focus on building a strong foundation, both technically and personally. Stay curious, be open to new technologies, and take ownership of your own development. Growth requires discipline, teamwork, and professionalism, and those who remain adaptable will find opportunities to progress.

For maritime educators/instructors: it is essential to stay relevant and forward-looking. This means continuously updating your knowledge, embracing innovative teaching methods and tools, and maintaining close links with industry to ensure training reflects real-world needs.

For shipping companies: continuing to invest in people is critical. Supporting continuous training, creating clear development pathways, and fostering a culture that values learning and innovation are key to building a competent and resilient workforce.

Ultimately, those who can adapt while maintaining strong professional standards will be best positioned to succeed in the future maritime industry.

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MARLOW NAVIGATION CO. LTD.

Head Office: 13 Alexandrias Street, 3013 Limassol, Cyprus
+357 25 882 588 | info@marlowgroup.com | marlow-navigation.com

