MARLOW NAVIGATION

TRAINING JOURNAL

2025 Edition
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MARLOW NAVIGATION

For over 30 years, Marlow Navigation's dedicated training initiatives – supported by longstanding partners in key locations – have focused on building a culture of continuous learning and development.

WELCOME MESSAGE

Dear Readers,

We are pleased to present the 2025 Marlow Navigation *Training Journal*.

Published annually for nearly three decades, the *Training Journal* has become a vital resource to keep our clients, partners, associates, seafarers, and shore-based staff informed about our global training activities.

Each year, the journal highlights our key developments in training, including news and events, major projects and opportunities, new training equipment and facilities, and our latest key performance indicators. It also features special reports on some of the most relevant topics facing our industry.

In this year's Marlow Opinion piece, we explore why enhanced seafarer training and Continuous Proficiency Development (CPD) are critical drivers in shipping's decarbonisation journey.

In our Analysis, Dr Ziaul Haque Munim, Professor of Shipping and Logistics at the University of South-Eastern Norway, examines the profound shift brought by simulator-based instruction, the growing range of simulator modes, and how these address targeted needs in maritime education and training.

Finally, we interview two Ukrainian maritime instructors on the transformation of maritime education and what lies ahead. Along the way, we hear their powerful stories of resilience, leadership, and dedication, as they continue to support Ukrainian cadets and seafarers through education, training, and mentorship.

For over 30 years, Marlow's dedicated training initiatives – supported by longstanding partners in key locations – have focused on building a culture of continuous learning and development. This is not only an investment in individual seafarers, but also in the long-term resilience, safety, and reputation of the shipping services we deliver.

Ongoing training is not merely a requirement for seafarers, it is a critical cornerstone of proficiency and competency, and in turn maritime safety, operational excellence, as well as professional career growth. It ensures that both cadets and experienced seafarers alike, keep pace with the ever-evolving demands of the maritime industry. This is particularly vital given the rapid advancement in shipboard technologies, such as with sophisticated equipment, automated and digital systems, stricter environmental regulations, alternative fuels and energy sources, as well as increasingly complex international trade routes that require up-to-date knowledge and adaptive skill sets.

More specifically for cadets and trainees, continuous learning combined with onboard experience, bridges the gap between theoretical studies and training ashore with the realities of life at sea. It builds confidence and competence, and instils the essential practical skills and seamanship required in being a professional mariner.

Joint Managing Directors, Jan Meyering and Andreas Neophytou

For senior officers and more experienced seafarers, ongoing training refreshes critical competencies and skills, reinforces safety behaviours, and integrates new or updated approaches, technologies and regulations. This ensures they are compliant with international standards, remain agile, highly effective, and continue to excel in their roles as marine professionals and leaders at sea.

Equally important is the ongoing cultivation of soft skills across all ranks – such as communication, interpersonal, cultural awareness, teamwork, adaptability, critical thinking and sound decision-making, among other – essential for operating safely and efficiently.

In a maritime environment that is dynamic, especially during such times of significant transformations, if not disruptions, and in an industry that can inherently have greater challenges and higher-risk by nature, ongoing training and continuous development are indispensable. They underpin responsible, competent seafaring and help safeguard people, assets, and the marine ecosystem.

Thank you to all our clients, industry partners, seafarers, shore-based staff, and their families for your continued trust and support. We look forward to even more collaboration and shared successes in the years ahead.

We trust you enjoy reading this year's *Training Journal*. As always, we welcome your feedback and suggestions.

Marlow Navigation Management

DUTCH AMBASSADOR VISITS MARLOW NAVIGATION'S FACILITIES IN THE PHILIPPINES

Strengthening Maritime Partnerships – Dutch Ambassador to the Philippines visits Marlow Navigation, underscoring the crucial role of Filipino seafarers in global shipping and gaining firsthand insight into Marlow's world-class training and development programmes.

A delegation from the Embassy of the Netherlands in Manila visited Marlow's offices early this year, reinforcing the strong maritime ties between the Netherlands and the Philippines.

The delegation included Ambassador of the Kingdom of the Netherlands, H.E. Marielle Geraedts, Senior Commercial Officer Patricia Sarmiento-Alvenida, and President of the Dutch Chamber of Commerce in the Philippines and recently appointed Academic Quality and Development Adviser at UMTC, Roy Akker.

Key discussions were held with Marlow's senior leadership team in the Philippines, covering major industry topics, such as European Maritime Safety Agency (EMSA) compliance, the Magna Carta for Seafarers, training and development of seafarer talent, and the role of Filipino seafarers on the Dutch fleet.

The visit further strengthened growing collaboration between the Netherlands and the Philippines, reaffirming both nations' shared commitment to maritime excellence, including efforts in workforce development and innovation in training – ensuring cadets and seafarers are proficient, highly skilled, and well-prepared for a successful career at sea.

An estimated 22,000 Filipino seafarers are employed on Dutch-flagged vessels, making them the largest nationality group in the Dutch merchant marine fleet. Of these, more than 1,100 serve on vessels owned by Dutch shipowners and crew managed specifically by Marlow's office in the Netherlands. In total, over 10,200 Filipino seafarers are deployed across Marlow's global crew managed fleet.

Given the crucial role of Filipino seafarers in the Dutch fleet and the shipping industry as a whole, these engagements further help pave the way for future partnerships.

Delegation from the Dutch Embassy and Chamber of Commerce in the Philippines visits Marlow Navigation

As part of their visit, the delegation toured Marlow's partner training centre in Manila, United Marine Training Center, Inc. (UMTC), to witness the training in action. Ambassador Geraedts, who previously attended a cadet graduation and selection ceremony at Palompon Institute of Technology (PIT), witnessed firsthand the education, hands-on training, and high standards required to develop world-class maritime professionals. She also observed cadets in session, including graduates from PIT.

A key highlight was testing the full-mission bridge simulator, where Ambassador Geraedts took the helm, navigating a ship into Sydney Harbour – a testament to the advanced training methods used to prepare future seafarers.

Ambassador Geraedts expressed her appreciation for the visit, sharing on LinkedIn: "Thank you for the opportunity to visit Marlow Navigation, one of the companies that selects and trains Filipino crew members for Dutch vessels, at an impressive facility. They challenged me to use their state-of-the-art simulator to sail a container ship into Sydney port. And I managed to do it without any accidents, with the help of two experienced captains!"

Both Ambassador Geraedts and President Roy Akker praised Marlow's dedication to training and development, as well as UMTC's world-class facilities. Roy Akker noted that both Marlow and UMTC are clearly raising the standards for the seafarers of the future, underscoring the importance of high-quality training in ensuring a skilled maritime workforce.

NURTURING THE NEXT GENERATION OF MARITIME PROFESSIONALS IN POLAND

Marlow Navigation and the Maritime Technical School in Świnoujście (Zespół Szkół Morskich) sign cooperation agreement to provide cadets practical training at sea during the official orientation ceremony for the start of the new academic year.

Marlow Navigation has signed a cooperation agreement with the Maritime Technical School in Świnoujście (Zespół Szkół Morskich), Poland, to provide cadets practical training at sea.

The agreement was officially established towards the end of last year and will be an annual initiative. Much like an apprenticeship, cadets are given the opportunity to work at sea aboard vessels in Marlow's crew managed fleet, while continuing their academic studies. This helps build the practical skills and competencies required to obtain their officer license and advance their maritime careers in good time.

Aimed primarily at training ratings and operational-level officers, the programme places cadets on board during school breaks in June and July. They then return to their studies in September. Additional sea-going opportunities may also be available during other breaks throughout the academic year.

Upon graduation, they may return to Marlow as cadets, ratings, operational-level officers, and potentially advance to management level officers thereafter. The first group of cadets have already been accepted into the programme for this year.

Students following this path are often able to obtain their officer license more efficiently than other streams, and gain a head start in their careers.

Since 2010, the school has had the authority to train maritime personnel at operational level in accordance with the requirements of International STCW Convention. It remains the only secondary school in Poland with such authorisation. This allows graduates to obtain officer diplomas after completing supervised sea internships.

"We have been very impressed with the level of candidates from the college, with so many students from this region showing talent, capability, and motivation to join our programme and kick-start their careers at sea," said Marlow's Managing Director in Poland, Piotr Masny.

"Of course it is also a requirement, but hands-on training allows cadets to gain further knowledge and skills through direct experience and practice. It's a powerful pathway for skills development, allowing participants to learn by doing, build confidence, and better prepare for their life at sea. Learning alongside experienced crew and mentors is also invaluable," added Masny.

Following their time at sea, cadets receive detailed performance feedback, which is also shared with the school. This creates a feedback loop, enabling cadets to reflect on their successes and areas for improvement – further reinforcing their learning and professional growth.

The maritime school is actively involved in the pre-selection process alongside Marlow, helping to motivate students to apply while maintaining engagement throughout the cadets' progression.

Principal, Maritime Technical School, Marzena Gancza signs cooperation agreement with Marlow Navigation, represented by Crew Superintendent in Poland, Justyna Przybyla-Werbel

Photos by Adam Sondel

"Our cooperation with Marlow Navigation offers students significant opportunities to undergo supervised sea internships, obtain officer diplomas, and start working on vessels managed by the company. This year, 9 students took advantage of this opportunity," explained the school's Principal, Marzena Gancza.

"We are extremely grateful that Marlow took the initiative to establish this cooperation. This collaboration provides the school with development opportunities, supports our students, and enables them to gain professional experience and enhance their qualifications," added Gancza.

Located, in the west of Poland, the Maritime Technical School is state-run and overseen by the Ministry of Infrastructure. Its primary fields of study include marine navigation, ship mechanics, transport and logistics, and maritime IT. The school is well-equipped with modern classrooms, navigation and mechanical labs, chemical labs, computer facilities, a digital library, recreational and sporting amenities, and student boarding facilities.

Established in 1960, the school has a proud maritime tradition, with over 11,000 graduates to date. It has been a member of the national Club of Leading Schools since 1988 and is recognised by the Polish Ministry of Infrastructure as a maritime education and training centre compliant with the international STCW convention – ensuring that its diplomas are internationally recognised.

Marlow also collaborates with other maritime schools in Poland to attract new talent to the shipping industry and expand opportunities. In February this year, Marlow's Polish office participated in the first-ever Maritime Careers Fair at Gdynia Maritime University (GMU), engaging with future maritime professionals and providing insights into the company's crew recruitment, placement, training and career pathways. GMU is the largest maritime university in Poland and one of the largest in Europe.

"Hands-on training allows cadets to gain further knowledge and skills through direct experience and practice. It's a powerful pathway for skills development, allowing participants to learn by doing, build confidence, and better prepare for their life at sea."

IMEC LAUNCHES HIGH-IMPACT ETO TRAINING PROGRAMME WITH UMTC

Since its introduction in 2019, Marlow Navigation's Electro-Technical Officer (ETO) programme has proven to be a success. To date, over 600 ETOs have been trained, demonstrating the strength of the programme.

The exceptional quality of the ETO trainees has not gone unnoticed – earning recognition from the International Maritime Employers' Council (IMEC). In acknowledgment of this achievement, IMEC has chosen to sponsor the training of 36 ETO cadets at United Marine Training Centre (UMTC) in Manila through the International Maritime Training Fund (IMTF) – a strong endorsement of the programme's growing reputation for high standards and reliable outcomes.

Since mid-2023, IMEC has conducted a thorough review of maritime training centres across the Philippines to identify partners capable of delivering a world-class ETO training programme.

This included meticulously assessing the quality of training facilities and equipment, the experience and expertise of faculty, and the comprehensiveness of ETO programme offerings. UMTC emerged as a top-tier candidate, demonstrating excellence in infrastructure, academic and practical components.

This is the pilot initiative where graduates will join fleets operated by IMEC's 300+ member companies. Meanwhile, IMEC also intends to continue to expand the training programme to serve more members with highly qualified ETOs; an initiative aimed at directly addressing the global ETO shortage in the maritime industry.

During UMTC's assessment, IMEC representatives were introduced to the rigorous selection process and hands-on training, as well as the onboarding of graduates into the maritime workforce. They also learned about supplementary well-being initiatives, designed to support trainees' mental and physical health and well-being, contributing to their holistic development as proficient and highly-skilled ETOs.

IMEC's Representatives at UMTC in Manila, including CEO Francesco Garguilo, Head of Training, Rob Gale and External Engineering Consultant, Elmer Palumbarit

UMTC's selection was officially announced later in October, with IMEC expressing firm confidence not only in the quality of the facilities and proficiency of instructors, but also in the exceptional results the training centre has consistently delivered over the years. This confidence is further reinforced by the competence and professionalism of the ETOs UMTC has produced.

"As our training centre welcomes 36 future IMEC ETOs in 2025, we take immense pride in the recognition we have earned from IMEC," said UMTC's Managing Director, Donald Bautista. "We are honoured by this selection and remain committed to continuing to equip the maritime industry with highly trained and proficient ETOs, fully prepared to meet the evolving demands of the global fleet."

> *"We are honoured with this selection and committed to continuing equipping the maritime industry with highly trained and proficient ETOs, fully prepared to meet the growing demands of the global fleet."*

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Marlow's Director of Crewing, Captain Frank Brodersen addressing the senior officers

"Our Senior Officers' Seminars strengthen the foundation of leadership at sea. We are always pleased to see such active participation and lively discussions, underscoring the vital role of senior officers in upholding safety, standards, and teamwork."

MARLOW HOSTS SENIOR OFFICERS' SEMINARS IN CEBU

Marlow Navigation successfully held another series of Senior Officers' Seminars in Cebu, the Philippines in mid-February 2025.

These seminars not only help to reinforce Marlow's high standards, but also empower senior officers to drive positive change across their vessels.

The events in Cebu brought together senior maritime professionals, training experts, and company leaders from both Marlow's office in the Philippines and group headquarters in Cyprus for two days of collaborative learning, strategic discussion, and leadership development.

It convened over 60 selected management level officers, and reflected Marlow's ongoing commitment to professional growth, operational excellence, and onboard leadership.

NEWS & EVENTS

Presentations by a number of experts shared valuable insights on evolving maritime operations and future challenges, whilst addressing a range of critical topics aimed at enhancing ship-to-shore alignment, safety culture, and overall elevating standards. Among other, key topics covered included:

- Effective communication, to strengthen clarity and collaboration both onboard, and with shore-based operations;
- Creating awareness of P&I accidents and coverage;
- Crew performances reporting to support growth and accountability;
- Ethical leadership, promoting a culture of respect and inclusivity on board;
- Fostering responsiveness and professionalism in handling customer issues and complaints;
- Maritime resource management, and practical training and mentoring of crew on board;
- Social media and press handling, and public engagement, encouraging responsible behaviour and best practices;
- The meaning of economic speed and slow steaming, as well as severe weather avoidance
- Fuel oil saving measures and effective CO_2 emission voyage planning, and
- Applying constant engine power strategy for a given voyage.

"Our Senior Officers' Seminars strengthen the foundation of leadership at sea," said Director of Crewing, Marlow Navigation, Captain Frank Brodersen. "We are always pleased to see such active participation and lively discussions, underscoring the vital role of senior officers in upholding safety, standards, and teamwork."

"By fostering open dialogue and shared learning, we continue to improve, whilst always charting a course toward operational excellence, ongoing crew welfare, and a stronger maritime future," added Brodersen.

Marlow Senior Officers gather in Cebu for two days of collaborative learning, strategic discussion, and leadership development

This year's seminars also coincided with the expansion of Marlow's long-established office in Cebu, now here for over 20 years, offering a larger, more comfortable space to better accommodate seafarers and to be a contact point for their families. Whether applying for jobs at sea, training programmes, completing documentation, attending debriefings, or seeking assistance, they can now do so in a more spacious and welcoming environment.

Another key advantage is maintaining access to dormitory accommodation, providing seafarers with a place to stay while in Cebu. This is particularly beneficial for those awaiting deployment, returning from contracts, or attending training.

Participants of the Marlow Senior Officer Seminar in Cebu, the Philippines

IMO SECRETARY-GENERAL VISITS UKRAINE, MEETS WITH MARITIME CADETS

The Secretary-General of the International Maritime Organization (IMO), Arsenio Dominguez visited Ukraine in March to show support for its maritime community.

The Secretary-General discussed with Ukrainian students and cadets key topics, such as the industry's future, digitalisation, environmental and safety, and global career opportunities for young marine professionals.

The event was also attended by Manager of Marlow Navigation's partner Kherson Maritime Specialised Training Centre (KMSTC) in Ukraine. In his address to the audience, Captain Dudchenko emphasised the importance of continuing to recognise seafarers as key workers due to their essential role in global trade and the economy, as well as raising even more awareness about the industry as an attractive career.

The Secretary-General's visit was indeed an important signal of support for Ukrainian seafarers, and opened new opportunities for cooperation between the IMO and maritime educational institutions and training centres here, such as KMSTC, as well as the wider industry.

Ukrainian seafarers play a vital role in sustaining the global maritime industry, contributing a significant amount of skilled labour and resilience that help maintain the operation of international shipping and trade networks. At Marlow, the majority of the officers on board are Ukrainian.

The event took place at the Marine Transport Workers' Trade Union (MTWTU)'s venue.

Secretary-General of the IMO, Arsenio Dominguez addresses Ukrainian students and cadets

IMO's Secretary-General, Arsenio Dominguez visits Ukraine to meet cadets and the wider maritime community

Ukrainian seafarers play a vital role in sustaining the global maritime industry, contributing a significant amount of skilled labour and resilience that help maintain the operation of international shipping and trade networks.

Training programme launched for seafarers in the MENA region

MARLOW NAVIGATION AND UMTC COOPERATE IN MARITIME TRAINING FOR SEAFARERS IN THE MIDDLE EAST

Marlow Navigation has expanded its cooperation with United Marine Training Center (UMTC) to provide maritime training and upgrading to seafarers in the Middle East and North Africa (MENA) region.

This initiative is being coordinated by Marlow's regional management office in Oman, MENA Marlow Navigation.

Managing Director, Captain Qais Al-Zadjali called the cooperation "a significant milestone," noting that it combines Marlow's global maritime expertise with UMTC's advanced and state-of-the-art training facilities to deliver top-tier training and development and enhance the skills and qualifications of seafarers in the region.

The first significant effort of this cooperation was a comprehensive training programme for ratings, tailor-made for a number of shipping companies in the region. Held in Manila, this incorporated a blend of theoretical learning and practical exercises, addressing vital modules, such as:

- **Practical Deck Skills** – hands-on training in essential techniques for deck operations;
- **Safe Mooring Operations** – best practices for secure and effective mooring procedures;
- **Working Aloft** – safety protocols for elevated tasks; and
- **Working at Height** – emphasis on safety and efficiency during high-altitude work.

Subsequent training initiatives have taken place for both Deck and Engine officers, as well as a dedicated course for marine pilots.

"As we expand our services to maritime professionals in the MENA region, our commitment remains to deliver the highest standards in training and upgrading. We aim to equip seafarers with the knowledge, competencies and skills needed to meet the evolving demands of the industry," said Managing Director, UMTC, Donald Bautista.

First batch of seafarers from the MENA region undergoing the training programme at UMTC in Manila

ADAPTING MARITIME EDUCATION IN A TIME OF CRISIS

Amid ongoing challenges, Kherson State Maritime Academy (KSMA) hosted a pivotal conference in April to support the continued development of Ukrainian marine professionals through high-quality distance education.

The event was attended by Captain Dudchenko, Manager of Marlow Navigation's partner training centre in Ukraine and brought together leaders of key educational institutions, government representatives, educators, researchers, and students – all working towards a common goal in strengthening maritime education in these challenging times.

During the discussions, KSMA's representatives provided a presentation on the key competencies the maritime industry will require in the near future. Emphasis was on the importance of close collaboration between academia and industry, highlighting the need to adapt maritime education to the realities of today's rapidly changing world.

The Evolving Needs of the Maritime Industry

Indeed, the maritime industry is evolving quickly. A major driver of this transformation is the global push for zero emissions by 2050, which demands a major shift from traditional fuels to alternatives, such as LNG, hydrogen, ammonia, methanol and batteries, as well as digitalisation and ship automations.

Reports from the International Maritime Organization (IMO), DNV, Lloyd's Register, and other leading organisations provide roadmaps for these areas. They also highlight that, while automation and digital technologies will reshape ship operations, they will not eliminate the need for human expertise. In fact, the demand for highly-trained seafarers – particularly officers – will remain strong due to their indispensable decision-making and technical oversight roles, both at sea and in emerging shore-based positions. So while onboard crew sizes may decrease in the long-term, new shore-based roles requiring such maritime expertise, and experience, are expected to grow.

KSMA hosts conference to support the ongoing education and development of Ukrainian seafarers

Barriers to Modern Maritime Training

To meet these challenges, ongoing education, training and upskilling of seafarers is essential to ensure they are well-prepared for evolving roles, both at sea and ashore. However, several significant barriers stand in the way.

These include a shortage of experienced seafarers, limited availability of qualified instructors, insufficient investment in modern training facilities and up-to-date equipment, and slow regulatory development, which makes it difficult for institutions to align training programmes with industry and commercial needs in a timely manner.

At the same time, achieving decarbonisation targets and adapting to fast-moving technological change will require seafarers to develop stronger IT, digital, technical, analytical, and organisational skills.

The industry is clearly shifting toward a higher-skilled maritime workforce, where bridging the gap between theory and real-world practice has never been more important.

Meanwhile, distance education will also play a crucial role in maintaining such learning and training for the time being, both at KSMA, and throughout many other institutions in Ukraine. This includes sophisticated tools and online platforms, for both theory, and cloud-based navigational and engine room simulators for maritime training, assessment and mission planning.

Using such immersive technologies will help sustain education and training, and take it to the next level, since presently, more than half of the students have no direct access to classrooms or simulation complexes at training centres.

With commitment and collaboration from global stakeholders, KSMA and Ukrainian marine professionals can be well-equipped and prepared to continue playing a leading role in the international maritime industry

Opportunities for Transformation and Ukraine's Strategic Role in the Global Maritime Workforce

This period of transformation presents a unique opportunity to modernise maritime education and build a stronger, more future-ready workforce. This transformation offers not just a challenge, but a mandate: to continue investing in the people who will navigate the maritime industry's sustainable and digital future.

Similarly, continued investment and support of talent in Ukraine, which remains a vital source of highly-skilled marine professionals for the global industry.

With commitment and collaboration from global stakeholders, Ukrainian marine professionals can be well-equipped and prepared, so to continue playing a leading role on the world stage – today and in the decades to come.

UMTC JOINS INDUSTRY LEADERS IN CHARTING A DECARBONISED FUTURE

As the maritime sector accelerates its transition to a more sustainable future, Marlow Navigation's training partner in the Philippines, United Marine Training Center (UMTC) took part in the March event "Charting the Course: Empowering Seafarers for a Decarbonised Shipping Future."

Organised by Green Marine and Maritime Industry Authority (MARINA), the event assembled various regulators, training organisations, shipping companies, and industry leaders to collaborate on challenges and explore opportunities that decarbonisation presents.

The conference emphasised the impact of transitioning to greener shipping practices on seafarers. It highlighted the need for supportive and structured training programmes to overcome social and cultural barriers, such as unfamiliarity, skills gaps, and motivational challenges.

As a leading maritime training provider, UMTC plays a critical role in empowering seafarers with the competencies, skills and confidence to embrace these new technologies and operate in a decarbonised maritime landscape.

Programmes at UMTC focus on emerging alternative fuels and technologies, combining education and hands-on training, and a strong emphasis on safety, operational awareness, and adaptability – as necessary to effectively address the unique risks associated with alternative fuels.

"At UMTC, we are embracing the challenges, fostering stronger partnerships with industry experts and regulatory bodies to ensure our curriculum and

practices remain pertinent and in sync with maritime developments," stated Head of the Engine Department at UMTC, Engineer Vera Christine Navarrete-Dadula.

"UMTC is fully committed to supporting the decarbonisation transition by constantly updating courses and modules to ensure that the standards of the STCW Convention and IMO guidelines on alternative fuels are met. This includes training programmes focused on energy-efficient operations and the safe handling of alternative fuels, such as methanol, LNG, hydrogen, ammonia, and biofuels," added Navarrete-Dadula.

Further to training on decarbonisation, UMTC is also investigating opportunities in ship automation, sensors, AI, and remote operations, as part of efforts to support shipping companies and their seafarers in the digital transformation.

Through its commitment to continuous improvement and innovation, UMTC stands as a vital partner in steering maritime training towards a greener, smarter future.

UMTC team joins Green Marine, MARINA, and other industry leaders at event dedicated to decarbonisation in maritime

Marlow Cadets tour Amerigo Vespucci vessel and meet Italian cadets

MARLOW CADETS EXPLORE A PIECE OF HISTORY

On lighter note, Marlow's Prospective Officers in the Philippines, cadets in training, recently had the amazing opportunity to step aboard the *Amerigo Vespucci* and explore this iconic vessel's rich history and grandeur during her stop in Manila whilst on a global tour.

Known as 'the most beautiful ship in the world', the *Amerigo Vespucci* is a tall ship of the Italian Navy Marina Militare named after the infamous explorer. Her home port is La Spezia, Italy and she is in use as a training ship.

The visit was more than just a tour for our 70 cadets and 5 mentors – it was a chance to witness first-hand the essence of maritime tradition and naval excellence. Trainees also had the unique opportunity to meet and engage with their Italian counterparts who are presently undergoing their training aboard the ship.

NAVIGATING THE FUTURE: WHY ADDITIONAL SEAFARER TRAINING AND CONTINUOUS PROFICIENCY DEVELOPMENT (CPD) ARE CRITICAL FOR SHIPPING'S DECARBONISATION

The maritime industry stands at a pivotal crossroads as it transitions from conventional fossil fuels to alternative energy sources.

This transformation – driven by ambitious decarbonisation targets from the International Maritime Organization (IMO) and rapid technological change – demands a renewed focus on Continuous Proficiency Development (CPD) for seafarers.

Operating ships powered by alternative fuels, such as methanol, ammonia, hydrogen, and biofuels, requires seafarers to have new skills and systems knowledge. Without targeted, future-ready training, the workforce risks falling behind, putting both safety and sustainability at stake.

As shipping companies embrace sustainable fuel options, the demand for enhanced training programmes tailored to these new technologies becomes increasingly critical. The current landscape, however, reveals a significant gap in available training resources.

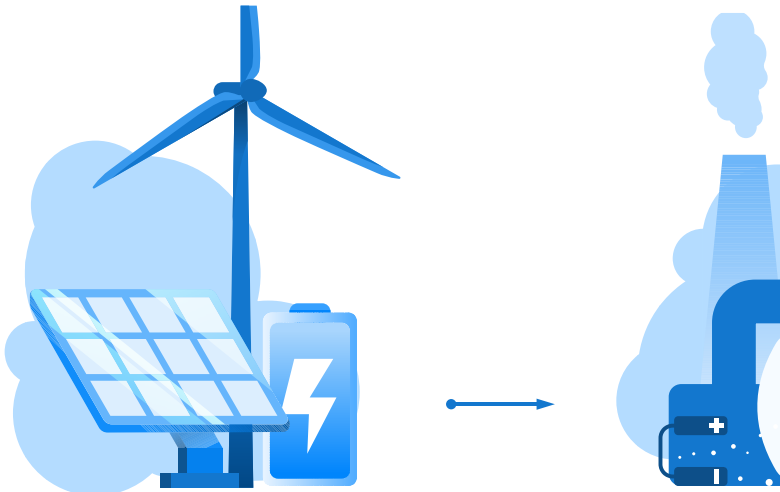
While the IMO is working on establishing guidelines for safely handling alternative fuels within the framework of STCW, the maritime industry lacks a robust framework of approved training courses that address the complexities of these emerging technologies. This deficiency poses a challenge to the workforce, which must be adequately prepared to navigate the evolving maritime environment.

Revisions to the STCW Code to address seafarer competencies in sustainable fuel technologies are not expected before 2030 – and that's assuming no delays. Yet technology is already outpacing regulation. New vessels are being built with dual-fuel or alternative-fuel-ready engines, meaning current training standards are no longer sufficient.

To ensure a successful transition to sustainable shipping practices, the industry must prioritise the development of targeted training initiatives that encompass alternative fuel technologies, alongside automation and digitalisation. Investing in CPD for seafarers enables maritime stakeholders to cultivate a skilled workforce that can adapt and keep pace with rapid industry changes.

This proactive approach will not only support the industry's efforts in decarbonisation, automation and digitalisation, but also enhance the overall safety and efficiency of maritime operations in a greener future.

Engine room operations monitoring



Purifiers' in the engine room on board a ship

To close the maritime skills gap, the industry must fast-track investment in training infrastructure and embrace forward-looking education models.

Current Training Landscape

While efforts and progress are underway, the global training landscape for sustainable fuels remains fragmented and underdeveloped:

- **IMO Guidelines:** The IMO is developing alternative fuel guidelines that could form the basis of new training standards. However, approved training courses for alternative fuel technologies are not yet widely available.
- **Skill Requirements:** Meeting decarbonisation goals and adapting to technological advancements requires increased IT, digital, technical, and organisational competence. The industry will need to map the skills and competencies required to implement decarbonisation-related technology.

Skills and Competencies for Decarbonisation

- Safe and efficient operation of alternative fuel systems;
- Management of complex maritime operations;
- Application of sustainability principles and environmental best practices;
- Proficiency in digitalised systems and automated platforms;
- Optimised onboard power management and energy use.

Safety and Training Challenges

Seafarers will need additional training to handle the risks associated with alternative fuels, such as toxicity, flammability, and explosiveness. A holistic approach is required to address safety challenges posed by decarbonisation, digitalisation, and automation.

Sea Service Requirements: To obtain IGF Certificate of Proficiency (International Code of Safety for Ships Using Gases or other Low-flashpoint Fuels), seafarers typically need to demonstrate practical experience on IGF-fuelled ships. This often involves accumulating sea service time, which can be challenging to obtain on a sufficient scale.

Simulator-Based Sea Time Reduction: IGF Code Sea Time Reduction training, particularly when focused on simulator-based training, can help address the issue of collecting sufficient sea service time for dual-fuel (IGF) ships.

Investment in Training Facilities

Simulation Technology: Enhances safety training by mirroring real-life scenarios. Practical use of engine, bridge, and automation systems should be part of seafarer training.

High-Tech Equipment: Investment in simulators, virtual reality tools, and other high-tech equipment is costly but necessary for effective training.

Availability of Competent Trainers

There is a need for highly qualified instructors with practical seagoing experience. The lack of qualified instructors impacts the quality of maritime education and training. Investment in developing instructors' competence is crucial.

Future Training Models

Strengthening Basic Education: Digital technology, automation, chemistry, emerging technologies, and management skills should be part of basic education for seafarers.

Lifelong Learning: CPD will help seafarers expand their knowledge and acquire transversal skills.
Blended Learning: Combining online courses, simulators, and collaborative learning is promoted as a future training model.

Specialised Training Modules

Fuel and Equipment-Specific Training: Short module-based courses should be the norm for introducing fuel-specific technology.

STCW Requirements: The Standards of Training, Certification, and Watchkeeping (STCW) requirements for alternative fuel technologies should build on existing requirements for LNG/LPG-fuelled ships.

Onboard Familiarisation: Ship-specific onboard familiarisation is vital for handling new alternative fuel technologies safely.

Finally, it is important to emphasise that while automation and digital technologies will reshape ship operations, they will not eliminate the need for human expertise, as also regularly highlighted by leading organisations such as the IMO, DNV, and Lloyd's Register, among others.

Demand for highly trained seafarers – particularly officers – will remain strong due to their vital roles in decision-making and technical oversight, both at sea and in expanding shore-based positions. While onboard crew sizes may gradually decrease in the long-term, new roles ashore requiring such maritime knowledge, skills and experience are expected to grow.

Conclusion

As a leader in maritime workforce development, our focus here at Marlow Navigation is on preparing seafarers for the demands of this transformation. Energy efficiency, power management, emerging technologies, alternative fuels and operational safety are central pillars of our long-term training strategy.

To close the widening skills gap and ensure a safe, efficient transition to a decarbonised future, the maritime industry on the whole must adopt forward-looking, adaptive education models that reflect the complexity of tomorrow's maritime operations. This is not a choice – it is an obligation. The future of shipping depends on a workforce that is not only prepared but empowered to lead in a rapidly evolving, low-carbon world.

The time for hesitation is over. The industry must rise to this challenge and act decisively, without delay. Seafarers are the backbone of global trade, and they deserve more than promises – they need action. Immediate and sustained investment in training infrastructure, bold industry-wide collaboration, and robust regulatory alignment are non-negotiable.

Methanol as fuel mock-up bunkering station at UMTC

EDUMERSIVE 360° - IMMERSIVE, INTERACTIVE, AND EMPOWERING

A new dimension of learning has arrived at Marlow Navigation's training partner in the Philippines, UMTC, with the introduction of Edumersive 360°, an innovative virtual reality (VR) training solution now embedded in the Crane Maintenance and Troubleshooting course.

This cutting-edge technology elevates traditional instruction by bringing theoretical concepts to life through interactive 360° simulations. Trainees can explore crane systems from every angle, deepening their understanding at their own pace beyond instructor-led sessions. Particularly in complex areas like electrical troubleshooting and mechanical diagnostics, this immersive approach sparks engagement, strengthens comprehension, and enhances retention.

Edumersive 360° also offers virtual replicas of the exact equipment used in the curriculum. This allows trainees to rehearse procedures and troubleshooting techniques in a realistic setting before working with actual machinery. The result is greater flexibility and the opportunity to build technical skills through repeated practice – all within a safe, controlled environment.

Safety and competency are always top priorities. Edumersive delivers on both fronts by creating a virtual space where trainees can explore, test solutions, and even learn from mistakes – experiences that are crucial for building confidence and critical thinking.

Edumersive 360° VR training solution integrated into Crane Maintenance and Troubleshooting course

HANDS-ON MASTERY: THE ZM6315 REFRIGERATION SYSTEM FAULT SIMULATOR

Now available at UMTC in Manila, the ZM6315 (811 fault simulation training bench) provides students with practical, hands-on training in refrigeration system diagnostics.

This fully operational training simulator is designed to replicate both standard and fault conditions in a controlled and repeatable way, making it an invaluable tool for developing real-world technical skills.

New training simulator enables real-world diagnostics and repair training for refrigeration systems

At the heart of the system is a three-phase, multi-evaporator refrigeration unit built from commercial-grade components. It features two visible evaporators representing both positive and negative cold room conditions, powered by a semi-hermetic compressor and condenser group.

The simulator includes 25 fault scenarios that can be triggered by the instructor, covering both refrigeration and electrical systems. These faults allow trainees to investigate irregular operating conditions, sharpen troubleshooting skills, and develop a systematic diagnostic approach. Faults are activated via concealed components, keeping the learning experience authentic and challenging.

By enabling students to experience both normal operations and realistic malfunctions, the ZM6315 offers a safe, versatile, and immersive environment for mastering refrigeration systems – a crucial skill in maritime applications.

EQUIPMENT & FACILITIES

KMSTC NEW OFFICE PREMISES IN ODESSA

In response to the ongoing challenges, Marlow's training partner in Ukraine, KMSTC has relocated its operations to Odessa.

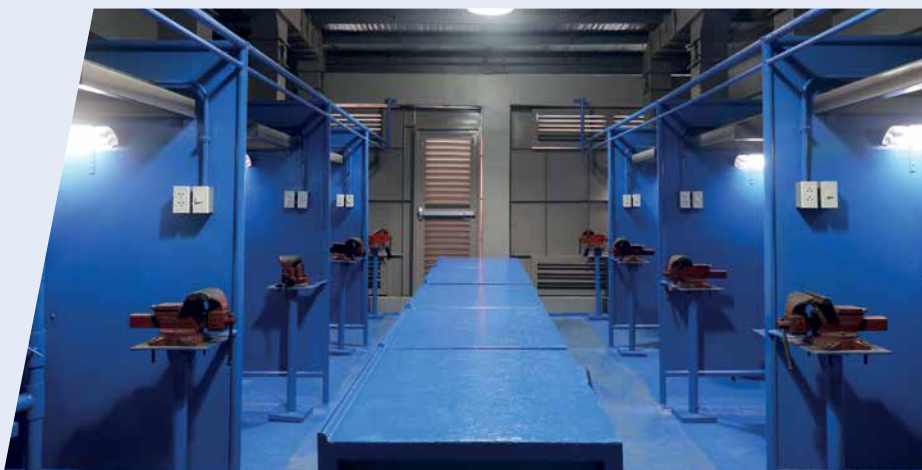
The new office premises also includes a room with desktop workstations and software for on-site training possibilities, as well as a fully equipped webinar room for producing high-level, instructor-led courses.

With these facilities, KMSTC continues to support the training needs of Ukrainian seafarers and students at KSMA.

KMSTC currently offers approximately 15 online courses through the MOODLE Workspace learning management system, supported by a cloud-based engine simulator. These courses are delivered by experts in each field, together with simulator instructors based in Odessa and various locations across Europe.

KMSTC's new office premises in Odessa, including desktop workstations for training possibilities and fully-equipped webinar production room

RECENT EXTENSION OF THE WELDING FACILITY AT UMTC: these allow trainees to perform all types of Electric Arc Welding processes, including Shielded Metal Arc Welding (SMAW), Metal Insert Gas (MIG), and Tungsten Insert Gas (TIG), among other. Welders are trained in 3G and 6G positions for their Welder Performance Qualification conducted by Bureau Veritas Certification, ensuring they meet the highest industry quality standards. Training is also designed to convert skilled welders with shore-based experience to be able to offer their services to the maritime industry, as well as to upgrade experienced ratings.



BRIDGE TEAM RESOURCE MANAGEMENT COURSE FOR MARINE PILOTS

Marlow Navigation's training partner in the Philippines, United Marine Training Center (UMTC) has successful completed its pilot run of the Bridge Team Resource Management (BTRM) course, specifically tailored for Marine Pilots. This is based on the existing and already running Master-Pilot Relationship project for senior deck officers initiated by Marlow to address possible accidents involving pilots.

The first marine pilots to undergo this three-day course came from the Port of Mina al Fahal in Oman.

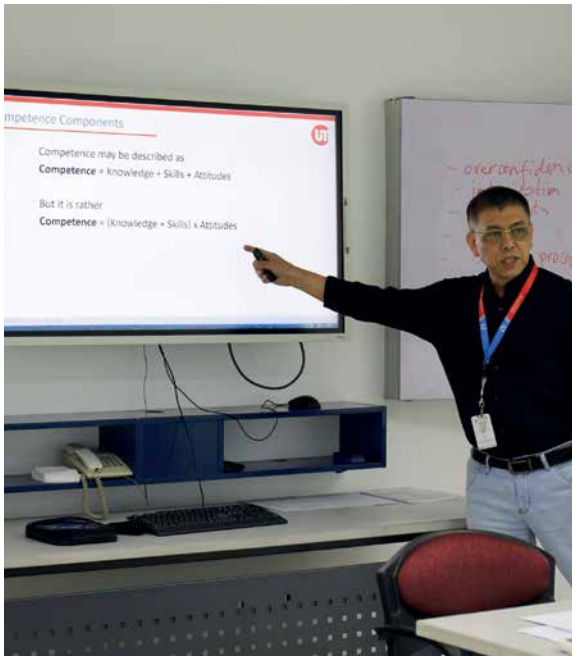
UMTC developed and delivered the requirements of this specialised BTRM training course, addressing critical issues within the maritime industry, such as fostering better teamwork, cooperation, and problem-solving between marine pilots and bridge officers. In addition, the course aims to enhance the interpersonal relationship between pilots and bridge teams, so that they can work together as a cohesive unit to navigate, handle, and manoeuvre a ship safely and efficiently.

The course covers theoretical aspects, case study analysis, together with workshops that focus on the human factor in accidents and incidents, such as communication issues and conflicting decisions on board. These real-life situations can lead to stress, tensions, and challenges in operational and interpersonal relationships.

Theory and discussions are later reinforced by practical exercises performed in the full-mission bridge simulator under controlled environmental and traffic conditions. Briefings and debriefings further highlight the importance of applying the principles of the bridge team and resource management when working with a pilot on board.

By the end of the training, participants gain valuable insights into teamwork, leadership, and managerial skills, and are better equipped to maintain a safe and effective pilot-bridge team relationship.

Instructors and participants of new Bridge Team Resource Management (BTRM) course at UMTC in Manila



SPECIALISED TRAINING IN METHANOL AS A MARINE FUEL

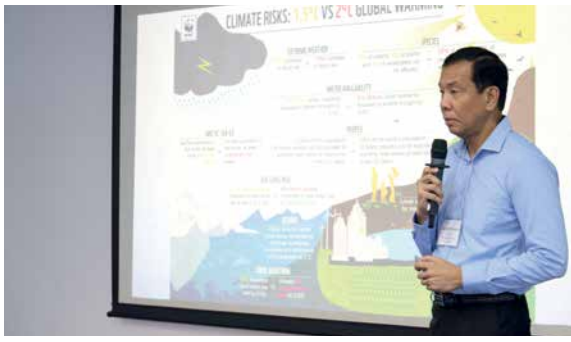
Green Marine's Specialised Training in Methanol as Marine Fuel continues to expand at UMTC in Manila. This is a focused two-day programme preparing seafarers for the shipping industry's shift to decarbonisation.

Initiated by Green Marine in cooperation with Marlow Navigation and UMTC in a drive to equip maritime professionals for a sustainable future, the course highlights methanol's potential as a clean, viable alternative fuel.

Commencing in August last year, the initial sessions of the course conducted in the Philippines included participants from the governing body of the maritime sector, representatives from Maritime Industry Authority (MARINA) and other officials, underlining industry-wide engagement in this green transition.

The training on methanol dual fuel ships supplements the mandatory basic and advanced IGF Code Trainings, which focussed on LNG, by specifically and thoroughly addressing the methanol related concerns. The training serves as a venue for the trainees to directly interact with the facilitators who are accomplished seafarers (Captains and Chief Engineers) with actual experience on ship design approval, shipbuilding supervision, ship delivery, management and operation of methanol dual fuel ships.

Plans are to expand their training portfolio with other alternative fuels like ammonia and hydrogen, available virtually for Marlow crew worldwide. Overall, this training package is geared towards educating seafarers, superintendents, technical managers, and anyone who has direct interest and control over the management and operation of vessels running on methanol.



Recent participants of the Specialised Training in Methanol as Marine Fuel course in Manila, together with Green Marine instructor

SELF-PACED HEAVY-LIFT ASSESSMENT FOR OFFICERS

Following increasing industry demand, Marlow has launched a self-paced Heavy Lift Assessment through both UMTC and KMSTC, tailored for Management Level Officers.

Delivered via the online learning management platform Moodle, the assessment covers critical areas such as stability and lashing calculations, as well as cargo operations. Participants complete the assessment independently within 24 hours, allowing them to demonstrate competence, critical thinking, and decision-making without instructor supervision.

Once submitted, assessments are reviewed by the assessor against key criteria. Results and completion certificates are promptly emailed to both Marlow as the manning agency and each participant's principal – ensuring fast, transparent feedback to support deployment or further training decisions.

Overall, this assessment further evaluates the effectiveness of training and significantly contributes to enhancing crew expertise and improving competence.

ENHANCEMENT COURSES FOR CRUISE SECTOR AT UMTC

In collaboration with Marlow Navigation and a number of cruise ship companies, United Marine Training Center (UMTC) has introduced new dedicated hospitality enhancement courses aimed at elevating skills and promoting onboard service excellence for the cruise shipping industry.

This includes a 4-day Steward Enhancement Course, which covers key competencies such as effective housekeeping, food handling, hygiene, and sanitation practices, all aligned with Hazard Analysis and Critical Control Point (HACCP) principles. Participants gain a deep understanding of cruise ship stewarding, including essential traits and responsibilities for maintaining cleanliness, hygiene, order, and safety on board.

Another newly introduced course is the 12-day Hospitality and Bar Service Training for Cruise Ships. This covers a number of areas, including: introduction and familiarisation to cruise ship operations; code of conduct, safety and hygiene; beverage knowledge, bar tending and practical exams; teamwork and time management; professional behaviours and guest service etiquette and interactions; handling complaints; and responsible service of alcohol, among other.

Led by seasoned instructors with extensive onboard experience, these new courses blend theory with hands-on training practice in their respective areas, together with role-playing customer interactions and scenario-based problem-solving, bringing real-world relevance to every lesson.

They provide trainees with the necessary training to gain better theoretical and hands-on, practical experience and develop skills to meet the challenges and demands of the cruise shipping industry. This includes protocols, compliance with regulations, policies and procedures, responsible serving, professional manners, communications and etiquette with cruise ship guests, as well as overall customer service.

Additional courses for the cruise shipping industry are in the pipeline at UMTC.

All courses are well supported by state-of-the-art culinary equipment and facilities at UMTC, including various kitchens, galley setup, a new training bar, waiting and floor services practice, as well as stewarding and housekeeping area. Meanwhile, a fully functional hotel with both upscale rooms and dormitory accommodation, hotel lounge, F&B facilities, as well as recreational amenities provide ideal settings for additional practical training.

Dedicated steward enhancement and hospitality and bar service courses for the cruise shipping sector at UMTC

UMTC becomes a TESDA accredited assessment centre for an additional four qualifications

EXPANDING EXCELLENCE IN TRAINING THROUGH ACCREDITED ASSESSMENT

UMTC has become an accredited assessment centre by the Technical Education and Skills Development Authority (TESDA) in the Philippines for an additional four qualifications:

- Shielded Metal Arc Welding (SMAW) NC II
- Gas Metal Arc Welding (GMAW) NC II
- Gas Tungsten Arc Welding (GTAW) NC II
- Ship's Catering Services NC I

TESDA is the government agency tasked to manage and supervise technical education and skills development. As an accredited centre, UMTC upholds TESDA's strict competency standards and helps skilled workers gain nationally and internationally recognised certifications, enhancing employability and career prospects.

These additional qualifications build on UMTC's recognition as the first and only recipient of the TESDA Seal of Integrity in the Philippines – an award given to accredited assessment centres that consistently adhere to TESDA's operating procedures and quality management principles when conducting assessments. The award further demonstrates excellence, compliance, and consistent quality in assessment delivery, leading to the issuance of valid and reliable certifications.

UMTC remains committed to expanding its services in line with the evolving needs of the maritime industry – delivering world-class training, education, and certification to empower professionals and support global workforce development.

UMTC, TESDA accredited assessment centre for Ship's Catering Services NC I

Financial well-being courses for seafarers, delivered through training partner UMTC in Manila

Raising financial awareness and empowering seafarers to make informed decisions that support long-term financial stability and welfare.

FINANCIAL WELL-BEING PROGRAMME COMMENCES FOR SEAFARERS

Marlow Navigation continues its commitment to crew welfare by rolling out financial well-being courses for seafarers, delivered through training partner UMTC in Manila. Multiple sessions have already been held for both cadets and experienced crew members.

The course aims to raise financial awareness and empower participants to make informed decisions that support long-term financial stability. It encourages a mindset shift – positioning financial literacy not as an afterthought but as a key component of personal and professional development. Topics include budgeting, savings strategies, debt management, goal setting, investment planning, and risk awareness and protection.

Financial well-being is closely tied to mental health, particularly for seafarers managing long-distance relationships and supporting families back home. With contract-based work cycles, income management becomes vital to reducing stress and building a secure future. Good financial habits help seafarers avoid pitfalls, such as overspending during shore leave, unplanned debts and obligations, as well as lack of savings between contracts.

Promoting financial literacy equips crew with the confidence to budget, save, and invest wisely – contributing to both personal resilience and a more focused, motivated workforce. It benefits not only individual career development but also the maritime industry at large.

Seminar addressing mental health challenges faced by seafarers and families

The programme builds on Marlow's 2023 pilot initiative, developed in collaboration with The Mission to Seafarers. The training was first aimed at a selection of shore-based employees, who also regularly engage with seafarers and have an understanding of the financial pressures and challenges they face.

Marlow continues to prioritise seafarer mental health and well-being through engaging, relevant education and training. Feedback from the financial well-being programme has been overwhelmingly positive, highlighting its real-world value and impact.

SEAFARER'S MENTAL HEALTH AWARENESS WEBINAR

Seafaring is a physically and emotionally demanding profession, often marked by isolation and long periods away from home. In such an environment, mental health awareness is not just important – it's vital for crew well-being and safety at sea. RightShip vessel inspections, for instance, include mental health awareness as a checkpoint, within their broader assessment of crew welfare and safety.

Marlow's updated Mental Health Awareness course is delivered as a webinar together with training partners in Ukraine and Russia. Conducted by a qualified psychologist, trainer and mental health coach, the course is designed to build mental resilience, increase understanding of the unique psychological challenges of maritime life, and provide practical tools for supporting oneself and fellow crew members. It encourages early recognition of stress, anxiety, and depression, while promoting a culture of openness and mutual support onboard.

By offering this training, Marlow is taking a proactive role in safeguarding crew welfare. Beyond individual benefits, the programme also strengthens team cohesion and operational performance. In an industry where human factors directly impact safety, productivity and success, mental health awareness is an essential investment in both people and professional services.

HIGH VOLTAGE VIRTUAL CLASSROOM TRAINING FOR BOTH MANAGEMENT AND OPERATIONAL LEVEL

As vessels become increasingly reliant on advanced electrical systems, a solid understanding of high voltage (HV) operations has become even more essential for today's marine engineers.

Marine High Voltage Simulator training conducted at KMSTC premises in Ukraine

In response to evolving industry standards and onboard technology, a newly updated High Voltage online training course utilising cloud-based simulators has been launched via Kherson Maritime Specialised Training Centre (KMSTC), to refresh and better equip marine engineers at Marlow with the knowledge and skills needed to safely manage and maintain high voltage systems at sea.

Since Ukrainian seafarers are based across various locations worldwide, to minimise logistical challenges, the most effective solution was to provide online access to a cloud-based HV simulation platform with instructor-led training.

The course covers both theoretical and practical aspects of HV operations, including system design, safety procedures, testing and fault diagnostics, and emergency response.

With updated content aligned to the latest regulatory and operational requirements, this training course ensures Marlow Navigation's marine engineers can confidently and competently handle marine high voltage systems as part of their daily duties, enhancing both onboard safety and operational efficiency.

CONTAINER CARRIER COURSE

Delivered online via KMSTC, the Container Carrier Course for Marlow crew covers the entire spectrum of cargo handling, from preparation and planning to execution and post-operation procedures.

Participants gain insights into various types of cargo, including special cargoes, and learn best practices for ensuring safety, compliance, and efficiency in cargo operations.

Additionally, a specialised software tool ARROW (Avoid Rolling Resonances or Wave impacts on ships) is integrated into the online container carrier course training. This tool is designed to estimate and visualise potential conditions and appropriate countermeasures in specific wave encounter scenarios, particularly those involving synchronous or parametric resonance. These phenomena are often the root cause of containerised cargo loss at sea and structural damage to ships.

Overall, proper cargo handling is critical to the safety, efficiency, and success of maritime operations and delivery of service to clients. For seafarers, specialised training in cargo handling ensures they understand the principles of important aspects such as weight distribution, securing methods, hazardous materials management, and compliance with international regulations and standards. This reduces the risk of accidents, cargo damage, and environmental incidents, while also supporting smoother port operations and vessel turnaround times.

With ships carrying a wide range of cargo types under increasingly complex logistical demands, well-trained crew in their operation play a vital role in safeguarding both the ship and its valuable load.

CONFINED SPACE ENTRY TRAINING GOES ONLINE

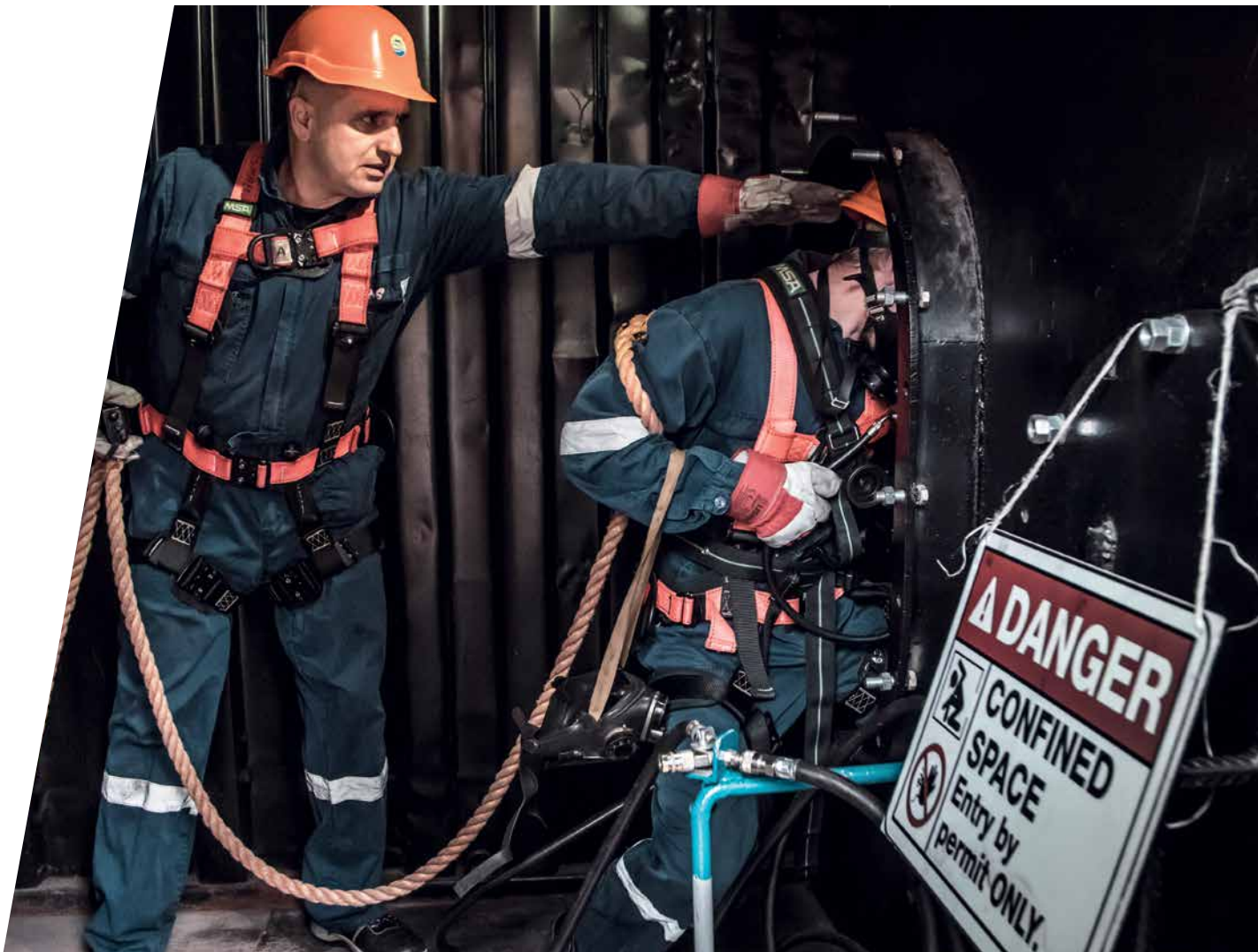
This online training course, delivered via KMSTC, is designed to equip crew with essential knowledge required for safe entry and exit from confined spaces. Since Ukrainian seafarers are residing in various locations in Europe, an online solution was found to minimise logistical challenges.

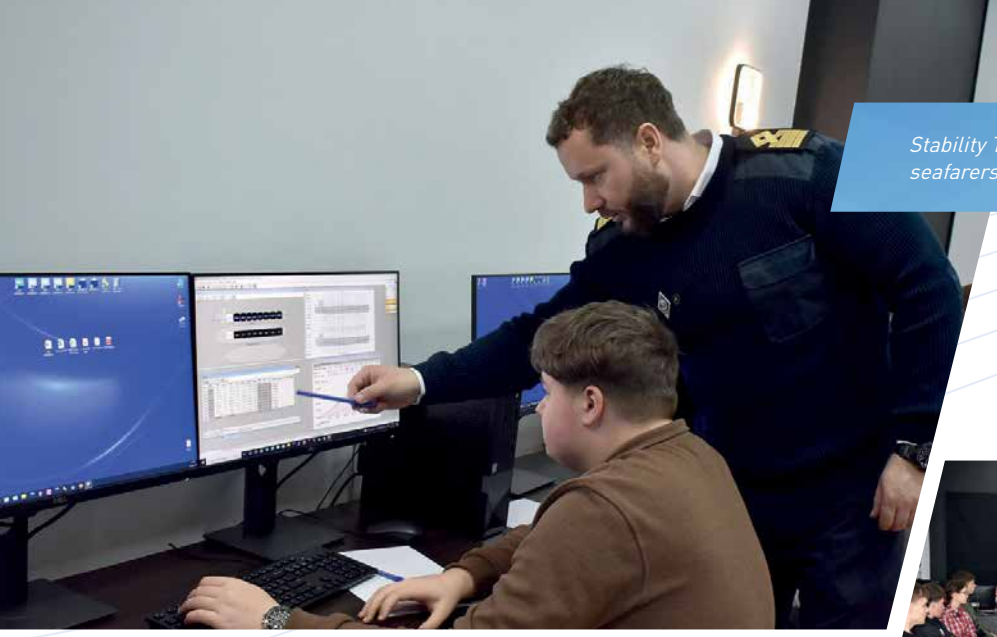
It covers critical aspects of danger and hazard identification, risk assessment, and control measures necessary for working in such environments. Emphasis is placed on understanding pre-entry preparations, safe operational procedures while inside, and best practices for a safe exit.

Confined space entry training is essential for seafarers due to the high-risk nature of working in enclosed environments, such as fuel tanks, ballast tanks, and cargo holds. These spaces often have limited access, poor ventilation, and the potential presence of toxic gases or low oxygen levels, and can pose serious threats to health and safety if not done correctly.

Proper training equips seafarers with the knowledge to assess risks, follow entry procedures, use appropriate personal protective equipment, and respond effectively in emergencies. By ensuring crew understand and respect the dangers of confined spaces, this training plays a vital role in preventing accidents and safeguarding lives at sea.

Confined Space Entry Safe Work Permit and Risk Assessment training at KMSTC premises in Ukraine





Stability Training for Ukrainian seafarers and cadets

STABILITY TRAINING FOR UKRAINIAN CADETS

The Stability Training run by KMSTC is designed for deck officers and is applicable for training of Ukrainian marine navigation cadets.

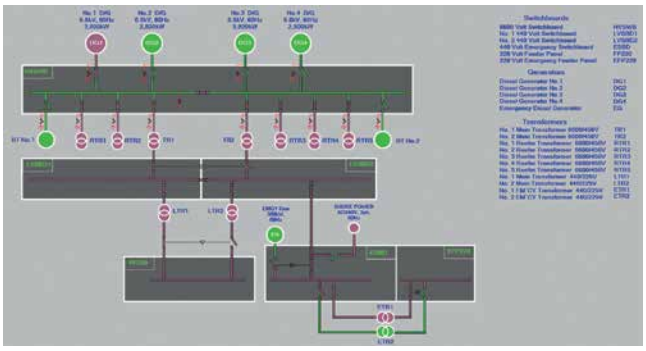
The advanced ship's stability and cargo handling training is conducted onsite and online, and is incorporating licensed Cargo Loading Training Software based on the cargo loading and stability programme used on board around 70% of the ships in Marlow Navigation's crew managed fleet, including for bulk carriers, product tankers, container carriers, and Ro-Ro vessels.

The training equips seafarers and cadets with essential practical skills needed for safe and efficient vessel operations.

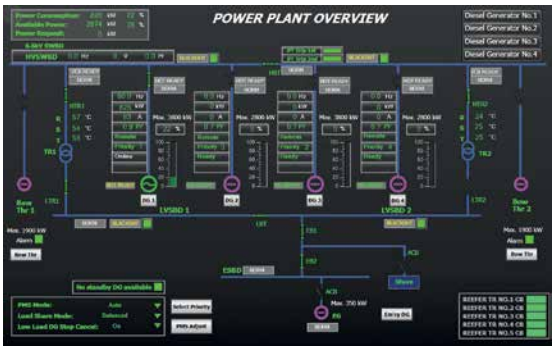
Understanding ship stability is a cornerstone of safe and effective marine navigation. For cadets, the training provides foundational knowledge essential for assessing and maintaining a vessel's integrity under various loading conditions, weather scenarios, and operational demands. It covers key principles such as centre of gravity, buoyancy, free surface effect, and metacentric height, ensuring future seafarers and officers can identify potential risks and take appropriate corrective actions to maintain seaworthiness and safety.

The course also incorporates advanced software tools that are widely used by shipping companies, and which allow cadets to simulate real-time stability scenarios and perform accurate stability calculations with greater efficiency. These digital platforms mirror the systems used on board, offering hands-on experience in evaluating stability margins, loading plans, and damage control situations.

By combining traditional theory with the latest technology, cadets can be better prepared for the dynamic challenges of modern ship operations and empowered to make informed decisions that uphold vessel integrity and crew safety.



Cloud-based FMERS: MAN BW Cam-Less Electronic Engine; Containership similar to the MV *DALI*



Power Management Configuration

BLACK OUT EMERGENCY PREPAREDNESS TRAINING

The creation of the "Black Out" Emergency Preparedness Training was prompted by increasing industry demands following the high-profile incident involving the cargo ship Dali and the subsequent collapse of the Baltimore bridge – an event that underscored the critical importance of emergency readiness in maritime operations.

This case has amplified industry-wide awareness of the need for comprehensive crew training, particularly in managing power loss and ensuring effective power management. It also highlighted the consequences of insufficient automation awareness and the inability of engine crews to respond swiftly to critical failures.

As maritime safety hinges on rigorous maintenance, inspection routines, and robust emergency response mechanisms, this course aims to equip seafarers with the knowledge and skills necessary to prevent and respond to such catastrophic events, ultimately safeguarding vessel integrity and operational continuity.

The course is conducted on a cloud-based full mission engine room simulator (FMERS).

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	
Psychological Risks at Sea & Suicide Prevention (ILOT)	2 DAYS
Confined Space Entry, Safe Work Permit & Risk Assessment (ILOT)	1 DAY
High Voltage (Management/Operational Levels) Cloud-based Simulator (ILOT)	3 DAYS
Container Ship Stability Program Class Based Training	1 DAY
Container Carrier Course (ILOT)	3 DAYS
Oxy-Acetylene Gas Welding Workshop	5 DAYS
Ballast Water Management (ILOT)	1 DAY
Safe Operation, Inspection and Maintenance of Macgregor Lift-Away Type Hatch Covers (eLearning)	1 DAY
Safe Operation, Inspection and Maintenance of TTS Hua Hai LOLO Type Hatch Covers (eLearning)	1 DAY
Safe Operation, Inspection and Maintenance of TTS Side Rolling Type Hatch Covers (eLearning)	1 DAY
Confined Space Entry, Safe Work Permit and Risk Assessment (ILOT)	1 DAY
Rightship Checklist for Deck Department (eLearning)	1 DAY
Rightship Checklist for Engine Department (eLearning)	1 DAY
Rightship IMDG Loading on Bulk carriers (eLearning)	1 DAY
RightShip Vetting Philosophy (eLearning)	1 DAY
Human Rights at Sea (eLearning)	1 DAY
Basic Electronic Automation and Control Training for Engine Officers	5 DAYS
Advanced Electronic Automation and Control Training for Engine Officers	5 DAYS
Bridge Team and Resource Management for Marine Pilots	3.5 DAYS

PERFORMANCE ASSESSMENT IN MARITIME NAVIGATION TRAINING

In this Analysis, Professor of Shipping and Logistics at the University of South-Eastern Norway, Dr Ziaul Haque Munim looks at the significant transformation with the integration of simulator-based instruction, particularly the diversity of available simulator modes, from desktop-based setups to full-mission bridge simulators.

Dr Munim shares with us insights from recent research exploring how different simulator modes serve specific objectives in maritime education and training. The study evaluates these modes using key technical, instructional, and organisational criteria.

Navigation simulator modalities and their priority

Navigation training within the maritime sector has undergone a significant transformation with the integration of simulator-based instruction. A central aspect of this evolution lies in the diversity of available simulator modes – ranging from desktop-based setups to full-mission bridge simulators – and how these modes serve different objectives in maritime education and training (MET).

The prioritisation of simulator modes is not a one-size-fits-all matter; it must be carefully aligned with technical, instructional, and organisational criteria to achieve effective performance assessment and learning outcomes.

In one of our research studies, we explored exactly that – we evaluated desktop, full-mission bridge, virtual reality (VR), and cloud-based simulators – and compared their relative priority considering a set of key evaluation criteria **(see figure 1)**.

These criteria are color-coded: blue for technical, green for instructional, and pink for organisational aspects. The comparative analysis not only highlights the strengths and weaknesses of each simulator type under different criteria, but also informs how institutions might best integrate them into structured training pathways.

Full-mission bridge simulators (FMBS) stand out as the most technically and instructionally robust. The figure shows a strong cluster of positive scores for FMBS in fidelity, immersivity, pedagogic value, training efficiency, team training, and regulatory compliance.

These high scores indicate that FMBS provide the most comprehensive and realistic training environment available. Their strength lies in their ability to support complex navigation scenarios, bridge team coordination, and summative performance assessment under high-fidelity conditions.

However, their advantages come at a cost. FMBS perform poorly in organisational criteria, particularly in terms of cost, remote training capability, and institutional scalability. This reflects the high investment required for their operation – dedicated space, experienced personnel, and continuous maintenance – making FMBS most suitable for advanced training modules or certification assessments rather than for routine or introductory instruction.

Availability of diverse and advanced simulator modes are serving specific objectives in maritime digitalisation, education and training

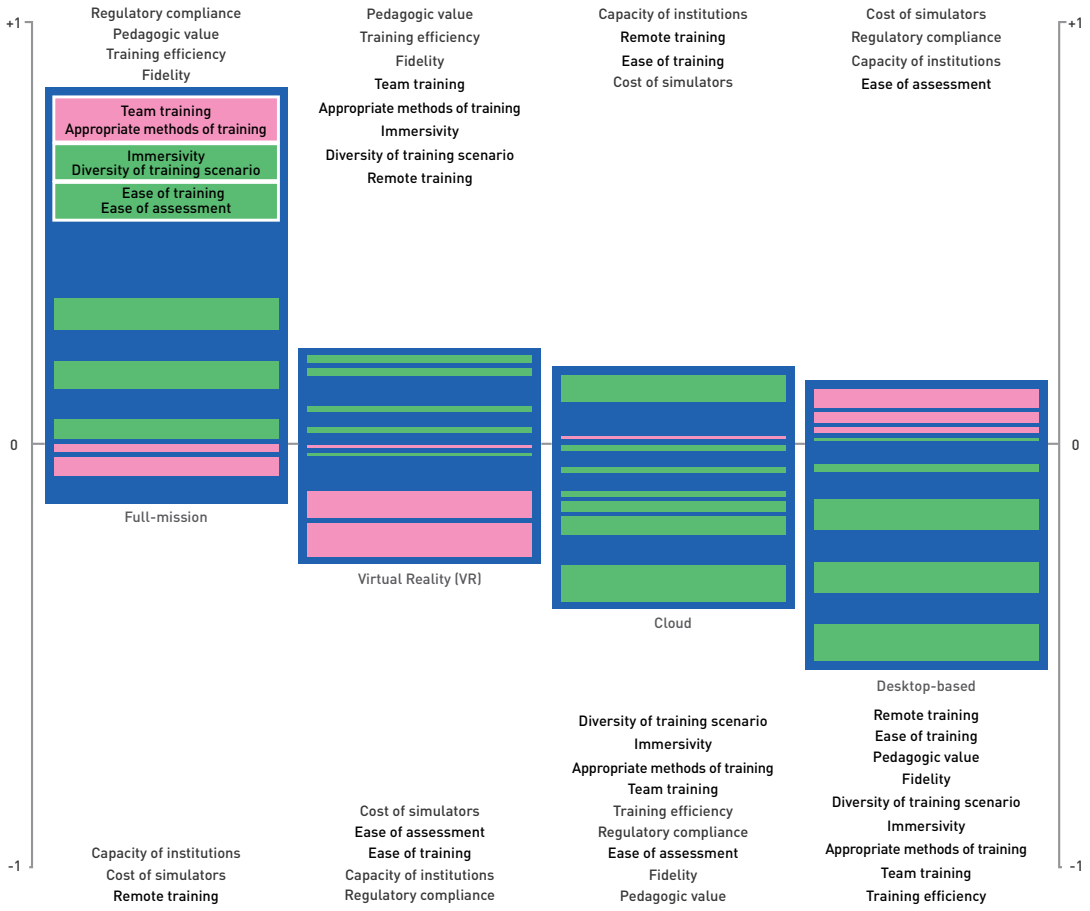


Figure 1
Priority of simulator modalities

In contrast, VR simulators demonstrate a more balanced performance profile. They receive moderately high scores in both technical and instructional domains, particularly in immersivity, appropriate methods of training, and team training. While not as high-fidelity as FMBS, VR simulators offer substantial pedagogical value by allowing learners to interact with simulated environments in an embodied, intuitive way.

Their instructional strength is complemented by some organisational benefits, such as a lower physical footprint compared to FMBS. Nevertheless, figure 1 indicates that VR simulators still face challenges related to cost and institutional capacity, positioning them as a flexible yet resource-sensitive option.

They are particularly useful for intermediate-level training, where students can reinforce procedural knowledge and begin applying it in more immersive scenarios without the full infrastructure demands of FMBS.

For cloud-based simulators, technical and instructional scores are lower overall, particularly in fidelity and immersivity. This reflects inherent limitations in web-based platforms, such as the absence of physical controls or sensory realism. However, cloud simulators excel in organisational performance. They score highest on criteria like cost of simulators, remote training, and ease of access, making them ideal for scalable, distributed learning.

These systems allow cadets to engage with training modules from anywhere with an internet connection, supporting flexible learning schedules and increasing institutional throughput. While they are not suited for high-complexity scenarios, cloud simulators play a vital role in early-stage familiarisation, theory-practice integration, and asynchronous skill development – especially in resource-constrained or geographically dispersed training environments.

Lastly, desktop-based simulators emerge with the lowest overall profile in figure 1. Their limited technical capabilities are evident in low scores for immersivity, fidelity, and team training.

Instructionally, they offer some value in ease of use and procedural familiarity, but their effectiveness is confined to simpler learning objectives. That said, desktop simulators show moderate organisational advantages. Their low cost, minimal setup requirements, and ease of assessment make them a useful option for basic instruction and repetitive practice, especially when training large cohorts or when resources are constrained.

However, their limited versatility means they are best deployed at the earliest stages of training or as supplementary tools alongside more advanced simulators.

Potential for automated assessment of competencies using machine learning approach

In maritime simulator training, performance assessment has traditionally relied on instructor observations, checklists, and post-simulation debriefings. While this approach benefits from professional judgment and real-time feedback, it also presents limitations in objectivity, scalability, and consistency.

As simulator technologies evolve, so does the potential to augment or even partially automate assessment processes. One promising direction is the integration of machine learning (ML) into performance analytics, enabling more systematic and data-driven evaluations of navigational competence.

The growing availability of digital traces – data generated during simulator sessions – offers a foundation for such automation. These include course deviations from electronic chart display and information systems (ECDIS), radar usage patterns, helm and throttle inputs, communication logs, and time-stamped actions.

When captured systematically, these datasets form a detailed footprint of trainee behaviour during simulation scenarios. However, data alone is not enough. What transforms raw logs into actionable assessment is the application of intelligent algorithms capable of pattern recognition, classification, and decision support – precisely the domain of machine learning.

One of our recent studies provides several key examples of how ML is already entering the assessment landscape. For instance, biosignals such as EEG (electroencephalogram), ECG (electrocardiogram), and eye-tracking data have been used to infer cognitive workload, stress levels, and situational awareness.

Convolutional neural networks (CNN) were trained on physiological data to classify levels of navigational performance, while another used support vector machines (SVM) to evaluate mental engagement during manoeuvring tasks. These approaches reveal an important shift: assessment is no longer constrained to observable outcomes but can extend to internal states and decision-making processes.

More traditional simulator-generated data, such as route deviations, speed profiles, and timing of control inputs, have also been analysed using artificial neural networks (ANNs) to classify performance quality. These models can detect non-linear relationships between variables that human assessors might overlook. For example, subtle hesitations in control actions or irregular response timing during anti-collision scenarios can be flagged as potential markers of underdeveloped competence.

The integration of diverse data sources is a critical strength of machine learning-based approaches. Rather than relying on a single performance indicator, such systems can fuse multiple inputs – visual attention from eye tracking, biometric signals, simulator control data, and even verbal communication – into a comprehensive picture of performance.

The proposed framework in our study **(Figure 2)** suggests using at least five distinct data sources, each analysed through a separate algorithm, with the results aggregated into a unified learning analytics dashboard (LAD). This kind of system could provide real-time feedback to instructors while also generating longitudinal performance profiles for each cadet.

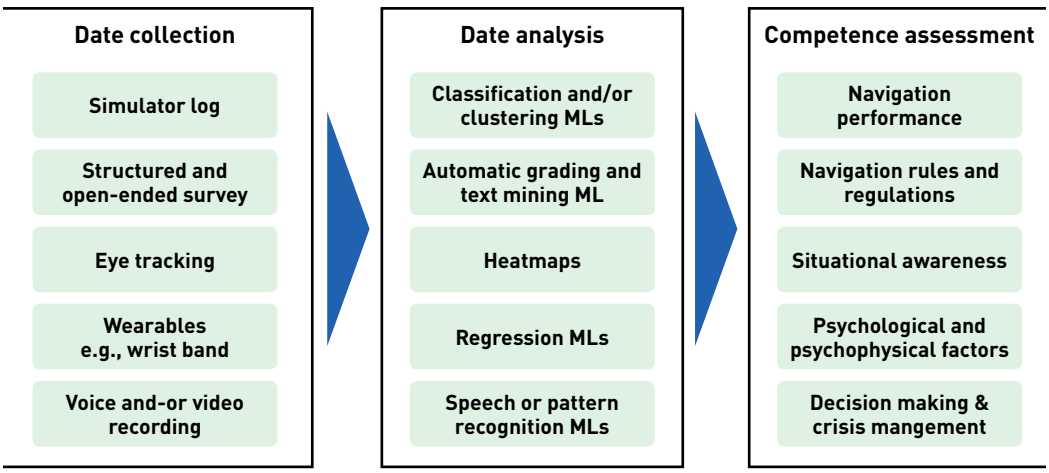


Figure 2
Modelling approaches for competence assessment

"The prioritisation of simulator modes is not a one-size-fits-all matter; it must be carefully aligned with technical, instructional, and organisational criteria to achieve effective performance assessment and learning outcomes."

In practice, this means maritime training centres could begin to automate elements of both formative and summative assessment.

For example, instead of relying solely on instructors to monitor a trainee's actions during a simulation, the system could automatically classify behaviours into "competent," "needs improvement," or "at risk," based on historical training data. More importantly, the system could also explain why a particular classification was made, highlighting deviations, delayed reactions, or lapses in attention, thus supporting reflective learning.

Despite the promise, several challenges remain. The development of reliable ML-based assessment systems requires large, high-quality training datasets that are well-labelled and diverse in scenario complexity.

Moreover, the feasibility of using wearable devices like EEG or fNIRS in daily training operations must be carefully evaluated, especially in terms of trainee comfort, data quality, and cost. Ethical concerns also arise, particularly regarding data privacy, transparency of algorithmic decisions, and the risk of over-reliance on automation.

Potential for automated assessment of competencies using machine learning approach

In navigation simulator training, every second of activity leaves behind a trail of digital timestamps. These simulator log data – recording rudder angles, propeller revolutions, course adjustments, vessel speed, and environmental conditions – hold untapped potential.

When paired with ML algorithms, these logs can do more than record; they can predict. Predictive analytics offers an opportunity to transform performance assessment in maritime education from subjective and retrospective to data-driven and forward-looking.

In one of our recent studies, utilising the simulation scenario of the Williamson Turn – a standard man-overboard rescue manoeuvre – we demonstrated how predictive analytics can be applied using simulator log data.

In this exercise, eight third-year nautical students executed the manoeuvre in both ballast and loaded vessel conditions using desktop-based simulators. During each exercise, simulator systems recorded time-series data at one-second intervals for 13 selected variables. These ranged from navigational parameters (course, heading, rate of turn) to control inputs (rudder angle, propeller RPM) and environmental conditions (wind speed and direction).

Traditionally, performance in such exercises would be evaluated by instructors watching video recordings and assigning a score or classification. While instructor judgment remains crucial, it is inherently subjective and time-intensive.

Predictive analytics, in contrast, automates the classification of student performance by training ML models to detect patterns in log data that correlate with expert-labelled outcomes. In our study, each student was classified as "Good," "Satisfactory," or "Needs Improvement" based on the consensus of experienced instructors. These labels were used as the target outcome for training ML classifiers.

We trained 58 different ML models using a cloud-based AutoML platform. The winning algorithm – eXtreme Gradient Boosted Trees (XGBoost) – delivered high classification accuracy. For the ballast condition, it achieved an accuracy of 96.7%, and for the loaded condition, just under 90%. These results validate that ML models can reliably predict student performance categories using simulator log data alone in some context. By analysing which variables had the most influence on predictions, instructors can gain a deeper understanding of the key drivers of successful performance.

In ballast conditions, the most predictive features were rudder angle, propeller revolutions per minute, and distance sailed. In loaded conditions, propeller RPM, speed over ground, and wind direction emerged as top predictors. These results are not only consistent with the physics of ship handling but also useful for shaping instructional feedback.

The implications are notable. First, predictive analytics enables real-time performance monitoring. If integrated into a learning analytics dashboard, students and instructors can receive ongoing assessments during a simulation, highlighting deviations from optimal performance.

Second, predictive feedback can be personalised. For example, a student flagged as "Needs Improvement" can receive specific guidance on adjusting rudder control or maintaining a more stable heading based on feature-level analysis.

Third, this approach facilitates scalable assessment. With reliable ML models in place, institutions can assess larger cohorts without proportionally increasing instructor workload.

There are challenges to address. ML models must be retrained when scenarios change or new vessel models are introduced. Also, current models classify entire exercises under a single performance category, whereas students may perform better in some phases of the simulation scenario than others.

Our research represents a pivotal shift in the landscape of maritime education and training, demonstrating how the predictive power of data can be harnessed. Traditionally reserved for post-hoc analysis, simulator log data can now be leveraged in real time to support proactive and adaptive learning through Real-Time Data Integration.

By applying predictive analytics, maritime training institutions can enhance assessment consistency, anticipate failures, and gain a comprehensive view of operational performance. This data-driven approach empowers informed, real-time decision-making, strengthens training outcomes, and ultimately cultivates more capable navigators equipped to handle the complexities of real-world maritime challenges.

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TRAINING: ENSURING PROFICIENCY DEVELOPMENT

Training activities across Marlow Navigation remained robust in 2024, with key performance indicators (KPIs) demonstrating general growth or stable trends.

This performance was largely driven by heightened industry demands for continuous proficiency development to ensure maritime safety, operational efficiency, and regulatory compliance. Advancements in ship automations, environmental technologies, fuels and requirements, as well as the sustained expansion of our external crew management activities further underpinned this trend.

The Marlow Training Matrix, a strategic framework designed to systematically track, manage and develop seafarers' skills and competencies across all ranks and vessel types, recorded a 22.4% year-on-year increase in total course attendances to reach 223,054 **(see Figure 1.1)**. Both classroom and online training participation rose. Notably, online course attendances grew 23.8% to 208,331, and reflecting a continued global shift towards digital learning. This was further stimulated by our training partners in Ukraine, who moved to almost fully remote learning models, whilst simultaneously also accommodating seafarers based in other Eastern European countries, such as Poland, Romania, and Bulgaria.

Across the board, training delivery remained diversified, encompassing e-learning modules, webinars, classroom instruction, practical workshops, and high-fidelity simulations. This blended approach is integral to addressing evolving technological, regulatory, and operational requirements, better engaging modern seafarers, while responding to industry training needs by systematically closing identified knowledge and skills gaps.

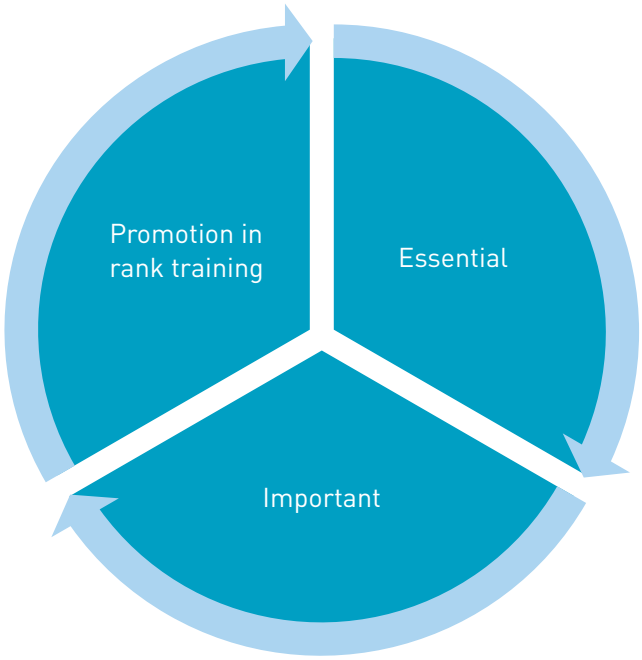
Together with our dedicated training partners in the Philippines and Ukraine, we have been focussed on this approach for a good number of years, and planned for such requirements accordingly. Primarily, this was done by accelerating its implementation and fulfilment via a comprehensive and robust global digital training ecosystem, both infrastructure and new content to fit, but also preparing instructors to better adapt to these changes.

In parallel, the social dimensions of life at sea also continued to drive training initiatives. For instance, courses addressing mental health awareness, general well-being, financial literacy and guidance, and leadership for senior officers remained priority areas.

As always, further developing soft skills also featured prominently, reinforcing the human factors essential for safe and efficient operations at sea. Indeed, soft skills are vital for the modern seafarer, helping to foster onboard collaboration, effective communication, safety, and enhanced performances. Skills such as adaptability, resilience, interpersonal, cultural awareness, critical thinking, decision-making and problem-solving, among other, must always be on the agenda.

UPGRADING TRAINING
TOTAL COURSE ATTENDANCES IN 2024

Fig. 1.1



14,723
AT TRAINING CENTRES

+

208,331
ONLINE COURSES

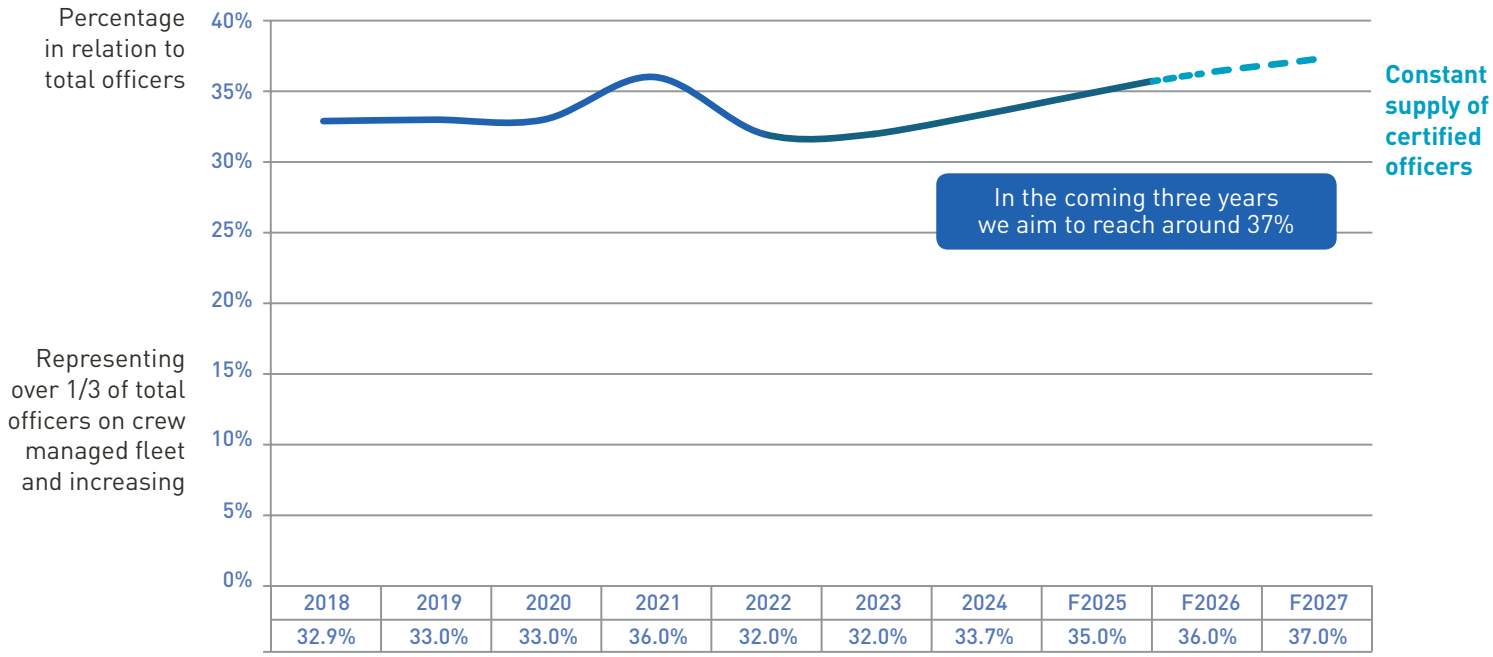
ACTIVE SEAFARERS OUT OF TRAINING PROGRAMME
PROMOTING CREW DIVERSITY

Fig. 1.2

Including cadets (prospective officers) and active officers

OFFICERS ON BOARD
OUT OF TRAINING PROGRAMME

Fig. 1.3



Officers on board out of the Marlow training programmes

The total number of active seafarers from training, including cadets (prospective officers) and active officers also increased compared to the same period last year, reaching 5,020. This stable representation and diversity in seafarers substantiate the success of well-established training initiatives, together with ongoing investment, and how they directly benefit crew operations and our clients **(figure 1.2)**.

The shortage of skilled and experienced officers at sea continues to be an ongoing challenge in our industry. To meet this demand here at Marlow, we continue to invest significantly in fostering officers through dedicated, dependable career pathways, enhanced training, further improving welfare standards, and by promoting maritime as an attractive and rewarding career to younger generations.

Since 2022, the trend in number officers on board out of Marlow training programmes has been on a steady incline, returning to its former growth trajectory prior to the disruptions of COVID **(figure 1.3)**. Our goal to reach 37% or more officers on board in the mid-term remains on track. This is supported by growth in crew management activities, therefore more positions for promotion, as well as ongoing training projects such as the Continuous Proficiency Development (CPD) in the Philippines for deck and engine ratings to be promoted to officers.

Continued support for Ukrainian training programme graduates – a vital source for marine professionals and particularly officers not just at Marlow but throughout the maritime industry – will also ensure this upward trend continues.

Overall, this progress is also primarily anchored in our well-established cadet/prospective officers training programmes, with core operations in the Philippines and Ukraine, supplemented by trainees from other regions. This structured and controlled approach not only accelerates competency development, but also fosters loyalty and higher retention, yielding a more experienced, specialised workforce that directly enhances safety and quality. It also allows close monitoring, engagement and mentorship, ensuring tailored development.

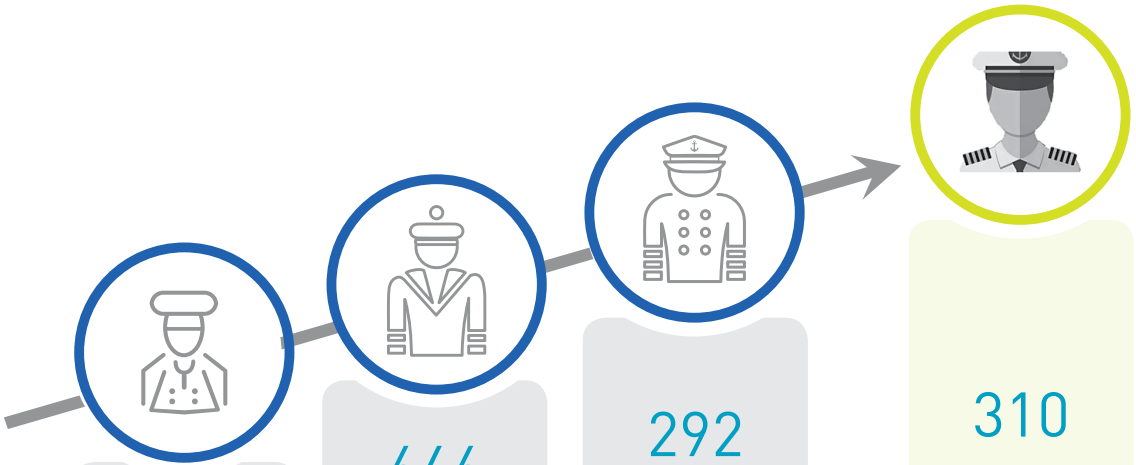
In 2024, total intake to our training programmes rose to 1,140, with promotions across all ranks exceeding the prior year **(figure 1.4)**. Promotions to senior management roles (Captains and Chief Engineers) reached 310, Operational to Management Level Officers 292, Prospective Officers to Operational Level Officers 646, alongside 165 promotions to Ship's Cook/Chief Cook positions.

Fig. 1.4

MARLOW DEDICATED TRAINING & CAREER DEVELOPMENT 2024

1,140 Total New Intakes

Sponsored & non sponsored, including deck, engine, electro-technical & culinary entering the Marlow training programme



165
Promotions to Cooks and Chief Cooks

646
Promotion of Prospective Officers to Operational Level Officers

292
Promotion of Operational Level Officers to Management Level Officers

310
Promotions to Captain / Chief Engineer

Training initiatives; investing in human capital

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Stability Training for Ukrainian seafarers and cadets

Lead instructor at KMSTC, Captain Dmytro Makarchuk

LEADING BY EXAMPLE COMMITMENT, RESPONSIBILITY AND RESILIENCE

No matter how far they travel, the spirit, loyalty, and camaraderie of marine professionals remain universal.

In this interview, we speak with two Ukrainian maritime instructors about the transformation of maritime education and training – and what lies ahead. Along the way, we hear their powerful stories of resilience, leadership, and dedication. Both have built successful sea-going careers before transitioning to teaching and mentoring the next generation of Ukrainian cadets and seafarers. Now based at UK universities, they continue to support Ukrainian cadets and seafarers through education, training, and mentorship.

Dmytro Makarchuk is a Master Mariner, PhD, lead instructor at Kherson Maritime Specialised Training Centre (KMSTC), and head of the navigational department at Kherson State Maritime Academy (KSMA). Holding MSc and BSc degrees from KSMA, and a PhD in Navigation and Motion Control, he has extensive sea service and academic leadership experience. He has led curriculum development for Master's programmes, delivered simulator-based and high-level tailored training, and contributed to major research initiatives. A certified ISO lead auditor, IMO trainer, and active member of international maritime bodies, he brings deep expertise in maritime education, auditing, and professional development.

Artem Ivanov is a PhD holder, Associate Professor, and lead electro-technical instructor at KMSTC. He also heads the Department of Ship Electrical Equipment and Automation at KSMA. With over 20 years at sea as an ETO and Senior ETO, he specialises in high-voltage systems, marine automation, and simulator-based training using cloud platforms and VR. At KMSTC, he develops and delivers advanced training for marine engineers, while also teaching core engineering courses at KSMA. A published researcher and ERASMUS+ project contributor, he works internationally to advance maritime education through innovation and real-world expertise.

The maritime education and training sector has seen a significant shift in recent years, driven by digital technologies. Hybrid models now combine simulator-based learning with cloud platforms and virtual classrooms. How has course content and delivery evolved to align with this transformation?

Dmytro: The transformation of maritime education has been both rapid and profound. Course content now integrates real-time case studies, interactive cloud-based platforms, and AI-supported learning tools. Over the past few years, we've adapted our syllabi to reflect these trends by introducing blended formats. Theoretical components are increasingly delivered through digital platforms, while practical elements continue to be supported through high-fidelity simulation and scenario-based learning.

We aim to mirror real-world operations using modern pedagogical methods, thus helping cadets and seafarers strengthen decision-making confidence in a controlled, feedback-rich environment.

Artem: Indeed, digital technologies have made significant advances in the field of education and training delivery. Course content has been updated to reflect modern technological realities and the learning preferences of a digitally native generation. We have integrated interactive exercises, cloud-based simulators, and digital tools that support independent learning and self-assessment.

Training formats have become much more flexible, with a blend of remote learning and simulator-based instruction. This hybrid model allows us to tailor the educational approach to different groups of trainees while also enabling the simulation of a broader range of operational scenarios that are difficult to replicate in a traditional classroom setting.

Our High Voltage course, for instance, uses a cloud-based engine room simulator for hands-on training across multiple vessel types that closely mirrors real-life conditions when working with advanced shipboard power systems.

What is the impact of cloud-based simulation training on cadets and seafarers?

Dmytro: It offers the unique advantage of continuity and accessibility. Where previously advanced simulation training was confined to physical facilities, learners can now access virtual bridge environments or engine rooms from virtually anywhere, enabling repeated practice and asynchronous learning.

This technology fosters a deeper understanding of procedures, improves retention, and allows instructors to monitor progress remotely with greater precision. It democratises training by bridging the geographical and infrastructural gaps that often exist in maritime education.

Artem: Cloud simulators ensure access during disruptions and promote autonomy. Trainees explore diverse vessel models and instructors can monitor progress in real time, enriching training significantly. This approach not only enhances convenience but also promotes a sense of responsibility, autonomy, and self-directed learning. At the same time, it greatly assists instructors, enabling real-time monitoring of each trainee's progress and performance.

Moreover, the wide selection of vessel models available in cloud-based simulators offers invaluable experience in understanding the operational principles of various shipboard systems – without the need for physical presence on the actual vessel. This flexibility makes it possible to expose learners to diverse ship types and configurations, significantly enriching their practical training experience.

Electro-Technical Officer (ETO) in the Heart of the Ship's Power System

High Voltage Testing: Precision and Responsibility in Action

How have you each adapted your teaching styles for such remote and blended learning?

Dmytro: Adapting requires a conscious shift from being a lecturer to becoming a facilitator of learning. My approach prioritises interaction and reflection. Building rapport in virtual settings requires additional efforts, but this is fundamental. For instance, maintaining strong communication through digital platforms, such as Learning Management System (LMS) forums, email, and messengers.

In my classes, I ensure every participant feels seen by actively encouraging involvement, giving timely feedback, using much more non-verbal communication and fostering a sense of shared responsibility. Even if it is remote, the learning atmosphere is very supportive, inspiring, and disciplined when managed with empathy and structure.

Artem: Increased emphasis on visualisation, interactivity, and personal engagement with students is needed. This includes, among other, incorporating polls, real-life case studies, scenario-based simulations and mentoring sessions to maintain open dialogue and build trust in the virtual classroom.

It is important to sustain interest in the subject, encourage discussion, and foster a sense of involvement, so that every student feels included and valued, and has the opportunity to express their thoughts and perspectives. Trust and regular communication are key factors in maintaining motivation and engagement in remote learning environments.

How do you assess competency in a digitised, remote training environment?

Dmytro: A robust combination of technology, pedagogy, and authenticity is required. We now rely additionally on scenario-based evaluation and digital mechanisms. With tools like cloud-based simulation and self-assigned exercises, we can replay performances, pinpoint decisions, and give specific improvement tips. This provides an extra level of personalisation in assessment, and something that traditional classrooms perhaps even struggled to offer.

Captain Makarchuk receiving a government award at Kherson State Maritime Academy (KSMA) in recognition of contributions to maritime education and training

Benchmarks are also evolving. Beyond STCW requirements, we assess higher-order competencies, such as decision-making under stress, communication effectiveness, and error recovery. Personally, I am a strong advocate of scenario-based oral examinations and simulated drills to validate not just knowledge, but the application of that knowledge in critical situations. In short, we're ensuring that assessment methods reflect real-world readiness – not just academic achievement.

Artem: A combination of online tests, simulator-based performance analysis during practical exercises, online workshops, and case discussions is needed. Today, in addition to standard assessment, we are integrating behavioural indicators, such as a trainee's ability to respond to non-standard or emergency situations.

One example is the "Blackout Emergencies" exercise conducted using a cloud-based engine room simulator. In this scenario, students are required to take immediate action during a simulated power failure. They must make independent decisions, which are later thoroughly debriefed and analysed: Were their actions safe? What risks were involved? Why did they choose a particular course of action?

This approach has proven particularly effective thanks to its integrated feedback mechanism, which not only evaluates technical accuracy but also develops critical thinking, decision-making, and operational awareness – key skills for modern marine engineers.

Looking 3–5 years ahead, how will maritime training continue to evolve?

Dmytro: Training will become more modular, AI-supported, and focused on real-time skills. We will see increased use of virtual and augmented reality, predictive analytics to tailor learning paths, and global credentialing systems that can be verified and updated in real time. As shipping becomes smarter and more automated, the human element will shift toward oversight, intervention, and digital collaboration, demanding new skillsets and mental models.

Artem: Fully agree. In the coming years, we will witness a complete digital transformation across the maritime sectors. One of the most significant developments I think is the increasing integration of automations and artificial intelligence – from training processes to its application onboard vessels and throughout the broader maritime industry. Together with the shift to alternative fuels, these major changes will drive the evolution of maritime training. The modern seafarer is expected to not only be a skilled technician, but also a systems analyst, capable of operating in highly automated and technologically advanced environments.

Artem Ivanov – demonstration of skills on high-voltage equipment

> *"In my classes, I ensure every participant feels seen by actively encouraging involvement, giving timely feedback, using much more non-verbal communication and fostering a sense of shared responsibility."*

A Legacy Continues: Cadet Induction and Family Pride in Maritime TraditionAction

How do you stay current with the latest advancements and trends in maritime education?

Dmytro: Continuous learning for instructors is not optional, it is a duty we owe to our cadets, students, and the industry at large. From actively engaging with international networks and professional associations, such as the International Maritime Lecturers Association, the Nautical Institute, and the International Association of Maritime Universities working groups, to participating in educational projects under ERASMUS+ and Horizon Europe.

I also regularly monitor the IMO media centre for meeting summaries and recordings, scientific journals, industry webinars, and contribute myself to editorial boards of various academic publications. These initiatives expose me to diverse perspectives, cutting-edge research, technology, and cross-border collaboration in maritime training.

Artem: For me, it is important to not only stay informed about emerging trends in maritime education, but also to contribute and help shape those trends, especially through involvement in international projects such as ERASMUS+. Staying updated and informed is essential. Attending international conferences and webinars, reading industry publications, and collaborating with maritime academies, companies and colleagues are all vital to support this.

Instructor Captain Makarchuk, together with KMSTC colleagues; upgrading skills in offshore safety training

Artem Ivanov Height of Responsibility: Performing Work Aloft on a Ship Mast

> *"Your work is vital. Education is power. Invest in yourself and in your knowledge – this is your greatest asset and something that can never be taken away."*

Dmytro Makarchuk "on the bridge" during his time at sea

You both bring extensive sea-going experience to your teaching. What inspired your transition from sea to maritime education? What lessons do you bring to training?

Dmytro: For me, it was driven by a strong desire to give back to the profession that shaped me. After years of navigating challenging voyages and leading multinational crews, I came to see education as a natural extension of leadership – one that shapes future generations and strengthens maritime safety globally. Teaching allows me to instil not just knowledge, but also the mindset and discipline required of modern officers. And so, the classroom became another bridge; not of a ship, but between experience and aspiration.

From my time at sea, the most valuable lessons I bring to my teaching are resilience, situational awareness, and respect for procedure. I emphasise critical thinking, calmness under pressure, and teamwork – qualities that often determine success in maritime operations. Real-life incidents I encountered or investigated serve as powerful case studies, helping cadets connect theory to real consequences.

Seafaring teaches humility and accountability, and I strive to embed those traits into every course I deliver. Our participants must not only pass exams, but earn the trust of crews and companies, and that starts with how we train them.

Artem: I have always believed that experience is meant to be shared. Life at sea taught me discipline, flexibility, and decisiveness in uncertain conditions. I gained extensive hands-on experience working on modern, high-tech vessels equipped with high-voltage systems – knowledge that proved invaluable both technically and professionally.

These are the qualities I strive to instil in my cadets and students. Transitioning into teaching was a natural step for me, as I realised that I could make a meaningful impact on the next generation, helping to shape their training to be more effective and closely aligned with the real-world demands of working at sea.

You both remain closely involved with training and mentoring Ukrainian cadets at Kherson State Maritime Academy (KSMA) and Kherson Maritime Specialised Training Centre (KMSTC). What drives your continued dedication to this work?

Dmytro: It is both professional and deeply personal. Amid the conflict and challenges our country faces, our cadets remain some of the most determined and capable individuals I've had the privilege to teach. Their resilience inspires me. Continuing to train and mentor them is a form of rebuilding, and of hope. Maritime education has become a lifeline for many young people and their families in Ukraine, not only economically, but also psychologically.

At KSMA and KMSTC, we've worked tirelessly to maintain the highest standards, modernise delivery, and uphold international credibility, even in the most difficult of circumstances. I see this work not just as teaching, but as nation-building. Every cadet who succeeds brings pride to Ukraine and strength to the global maritime industry. My motivation comes from their courage, their questions, and their achievements, many of whom I still mentor long after graduation. As long as they keep showing up, so will I.

Artem: My motivation stems from a deep sense of responsibility to the younger generation and to my country. Training highly qualified professionals is our contribution to strengthening and sustaining Ukraine's maritime industry, and future. It is a mission with real meaning, especially in today's challenging circumstances. The greatest reward is seeing a cadet you once taught grow into a confident, competent professional, who carries out their duties on board with skill and integrity. That is truly priceless.

Ukrainian seafarers hold a respected and influential position in the global maritime industry, and I have always strived to ensure that this legacy not only continues, but evolves. Achieving this requires coordinated and dedicated efforts from all stakeholders, including educational institutions, crewing agencies, shipowners, and the cadets themselves.

What message of encouragement would you share with young cadets – or any aspiring seafarers for that matter – about staying motivated and resilient in difficult times?

Dmytro: My message is simple: the sea will test you, but it will also transform you.

Difficult times, whether on board or ashore, are part of the journey. What defines a seafarer is not avoiding hardship, but rising through it. To young cadets, you have already proven strength by choosing this path amidst uncertainty. Your decision to keep learning, keep training, and keep believing in a global career is an act of courage. That courage will carry you safely through storms – metaphorically, and literally.

No matter the challenges, remember this, you are part of a global profession that values discipline, reliability, and excellence. Stay focused, stay humble, and the world will open to you. Build resilience, lean on mentors, respect your team, and keep investing in yourself.

Artem: Never give up. True professionals are forged in difficult conditions. Your work is vital. Education is power. Invest in yourself and in your knowledge – this is your greatest asset and something that can never be taken away.

Stay on course, keep working on your growth, believe in the future, and build your own story – as part of a community that plays a leading role in the maritime industry, and wider global economy.

What continues to inspire you about maritime training and education?

Dmytro: The transformative power of maritime education. Watching cadets become confident officers, capable of leading, navigating, and making critical decisions, is deeply fulfilling.

The sea shapes character like few other environments. And being part of that process, as a teacher, instructor and mentor, is a privilege I never take for granted. Every successful graduate is a reminder that what we do matters – not just to individuals, but to safety, trade, and global connectivity.

Seafaring remains one of the most international, dynamic, and essential professions. It teaches discipline, modesty, and global citizenship. Despite the challenges, I still believe in its power to change lives – and in the responsibility we have to train the next generation with care, right attitude and vision. Maritime education, at its best, doesn't just prepare trainees for jobs, but prepares them for life. That's what keeps me going.

Artem: I am inspired by the opportunity to change lives through education. The maritime industry is a unique combination of engineering, science, leadership, and service. It is a profession that shapes character, discipline, and the ability to act under pressure.

What excites me most is how we can use modern technologies and real-world experience to make maritime training more effective, relevant, and responsive to the needs of a new generation of seafarers.

And perhaps most rewarding of all is seeing the results of this work; when former students go on to serve aboard cutting-edge vessels, take on leadership roles in shipping companies, and achieve impressive milestones in their careers.


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