

Dynamic Positioning Training and Certification Scheme: Overview and Prospects

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ABSTRACT: Dynamic positioning operators must follow a training scheme developed by The Nautical Institute to obtain their license. The training scheme comprises two courses (basic and simulator) and two periods of dynamic-positioning training on board, which is recorded in a logbook. The documentation is carefully double-checked when these are completed before issuing the certificate. This paper aims to present the details of this training, currently covered in Section B of the International Convention on the Standards of Training, Certification, and Watchkeeping (STCW), and to predict how the system would work if the scheme is referred to in Section A of the same Convention. The Dynamic Positioning training and certification scheme will be compared to other micro qualifications detailed in Section A of the STCW convention to achieve this prediction. The following items will be evaluated: access to the course, instructor's eligibility, control of materials and equipment, updating of the lesson plan, and certification control. The results show that the Dynamic positioning training scheme is much superior in all the researched categories due to the rapid capacity for updating the materials and for the strict controls placed in lieu by The Nautical Institute to accredit training centres, including equipment and personnel, and especially the certificate-issuing system, keeping frauds to a minimum.

1 INTRODUCTION

The increasing complexity of offshore and maritime operations has necessitated highly specialised systems such as Dynamic Positioning (DP), which allows vessels to maintain a fixed position or precise track using computer-controlled systems that integrate position reference sensors, thrusters, and propulsion [1]. As the offshore industry increasingly relies on DP-enabled vessels for tasks like drilling, diving, subsea construction, and shuttle tanker operations, the need for competent and rigorously trained DP operators becomes paramount. Any failure in positioning systems or in the operator's ability to manage them can have severe operational, financial, and environmental consequences.

To ensure that DP operators meet the high standards required for safe and efficient operations, a comprehensive training and certification scheme has been established by The Nautical Institute, a globally recognised maritime professional body. This scheme consists of two training courses—a Basic DP course and a Simulator course—combined with two periods of onboard training, each documented and verified through a standardised logbook. Candidates receive a DP Operator Certificate upon completing all phases and verification by The Nautical Institute. This rigorous structure has been praised for its ability to uphold quality, adapt rapidly to industry developments, and maintain strict controls on accreditation and certification issuance [2].

Currently, this training scheme is referenced in Section B-V/f of the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), a key legal framework developed by the International Maritime Organization (IMO) [3]. Section B serves as a guideline and is not legally binding, unlike Section A, which contains mandatory minimum standards that signatory countries must implement. As a result, training programs mentioned in Section B, such as DP training, benefit from greater flexibility and can be tailored to meet industry-specific needs. However, they are not uniformly regulated across flag states, which may lead to variations in implementation and recognition.

This paper will analyse the current DP training and certification scheme in depth and evaluate how it would operate if incorporated into Section A of the STCW Convention. Through a comparative approach, the study will examine how the DP scheme aligns with or surpasses other micro qualifications already established in Section A—such as Electronic Chart Display and Information System (ECDIS) training, Bridge Resource Management (BRM), and security awareness courses [4]. Key factors to be assessed include access to training, instructor qualifications, control of course content and equipment, frequency of updates to the curriculum, and the overall integrity of certification systems.

As a result, training programs outlined in Section B—such as the DP training scheme—enjoy the flexibility that allows them to adapt swiftly to technological developments and the specific needs of the offshore and maritime sectors. This adaptability can enhance training relevance and responsiveness. However, because these programs are not subject to mandatory enforcement by all flag states, some variation in implementation and recognition may occur.

2 OVERVIEW OF THE CURRENT DYNAMIC POSITIONING TRAINING SCHEME

The Dynamic Positioning (DP) training and certification scheme, managed by The Nautical Institute (NI) on behalf of the International Marine Contractors Association (IMCA), is a globally recognised program designed to ensure that DP operators possess the necessary competencies for safe and efficient vessel operations. Established in collaboration with industry stakeholders, including flag states, the oil and gas sector, and offshore contractors, the scheme has been operational for almost 40 years (since 1985), adapting to technological advancements and industry needs.

2.1 Structure of the Training Scheme

The NI's DP training scheme [5] comprises a combination of theoretical instruction and practical experience, structured into four distinct phases:

- DP Basic/Induction Course (Phase A): This initial phase provides foundational knowledge of DP systems, covering topics such as system components, operational principles, and safety

procedures. The course typically spans five days and includes classroom instruction and simulator exercises. There is an online exam to be passed after the tuition. Upon completion, trainees receive a certificate of attendance and a NI DP logbook to document their subsequent training and experience.

- Onboard DP Training (Phase B): Following the Basic course, trainees must complete a minimum of 60 days of DP sea time on a DP-capable vessel. During this period, they are expected to perform various tasks under supervision, which are recorded in their logbook. This phase emphasises the practical application of DP knowledge in real-world scenarios.
- DP Simulator Course (Phase C): After accruing the required sea time, trainees attend the Simulator course, which focuses on advanced DP operations, including emergency procedures and system failures. This five-day course utilises high-fidelity simulators to replicate complex DP scenarios, allowing trainees to refine their decision-making and problem-solving skills.
- Onboard DP Training (Phase D): Post-Simulator course, trainees undertake an additional 60 days of DP sea time, further consolidating their skills. Completing this phase and successful task assessments and endorsements from senior DP personnel qualify the trainee to apply for the NI DP Operator Certificate.

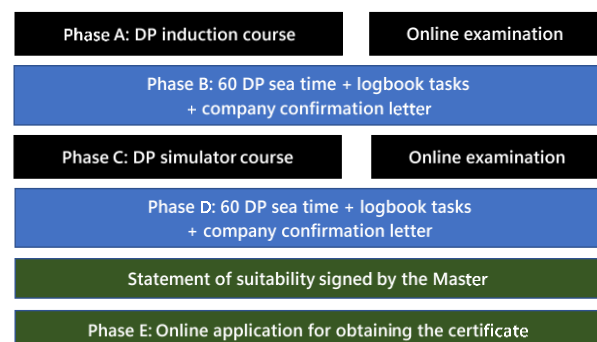


Figure 1. Structure of the DP Training and Certification Scheme

2.2 Certification Process and Quality Assurance

The rigorous certification process requires thorough documentation and verification of each training phase. Trainees submit their completed logbooks, course certificates, and other relevant documents to the NI for assessment. The NI evaluates the authenticity and completeness of the submissions before issuing the DP Operator Certificate.

To maintain high standards, the NI accredits training centres that meet specific criteria regarding facilities, equipment, and instructor qualifications [6]. These centres undergo regular audits to ensure compliance with the NI's standards. Additionally, the NI has implemented measures to minimise fraudulent activities, such as secure logbook formats and centralised record-keeping.

2.3 Continuous improvement and industry relevance

Recognising the dynamic nature of maritime operations, the NI continuously updates its training standards and course content to reflect emerging technologies and industry practices. Feedback from stakeholders, including training providers and maritime organisations (gathered as the Dynamic Positioning Training Executive Group – DPTEG [7]), informs these updates, ensuring the DP training scheme remains relevant and effective. The DPTEG usually meets twice a year to discuss issues relevant to the scheme.

3 MICRO-QUALIFICATIONS IN STCW SECTION A: STRUCTURE AND IMPLEMENTATION

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) [3] delineates mandatory training requirements in Section A, encompassing various micro-qualifications essential for maritime safety and operational efficiency. This Section examines three key micro-qualifications—Electronic Chart Display and Information Systems (ECDIS), Bridge Resource Management (BRM), and Security Awareness—highlighting their structure, implementation, and regulatory oversight.

3.1 *Electronic Chart Display and Information Systems (ECDIS)*

ECDIS training is mandated under STCW Code Sections A-II/1 and A-II/2, requiring deck officers to demonstrate proficiency in the operational use of ECDIS for navigation. The 2010 Manila Amendments reinforced these requirements, emphasising the need for comprehensive understanding and practical competence in ECDIS operations. Training programs typically follow IMO Model Course 1.27 [8], covering system functionalities, chart management, route planning, and emergency procedures. Assessment includes both theoretical examinations and simulator-based evaluations to ensure practical proficiency.

3.2 *Bridge Resource Management (BRM)*

BRM training, outlined in STCW Code Section A-II/1, focuses on effectively managing bridge operations, emphasising teamwork, communication, decision-making, and situational awareness. The training aims to minimise human error and enhance safety by fostering a collaborative environment on the bridge. Courses are designed to be interactive, often utilising simulators to replicate real-life scenarios, and assessments are based on performance in these simulated environments.

3.3 *Security Awareness*

Under STCW Regulation VI/6 and Section A-VI/6, Security Awareness training is compulsory for all seafarers. The training encompasses understanding security threats, recognising suspicious activities, and responding appropriately to security incidents. It aligns with the International Ship and Port Facility

Security (ISPS) Code [9] and is based on IMO Model Course 3.27 [10]. Assessment involves theoretical knowledge and practical drills to ensure readiness in real-world situations.

4 COMPARATIVE ANALYSIS: DP TRAINING SCHEME VS STCW SECTION A MICRO-QUALIFICATIONS

The Dynamic Positioning (DP) training scheme, administered by The Nautical Institute, exhibits several distinguishing features compared to other micro-qualifications mandated under Section A of the STCW Convention. This Section presents a comparative analysis across the following key parameters: access to training, instructor qualifications, control of materials and equipment, curriculum updating, and certification control.

4.1 *Entry requirements*

STCW-mandated courses such as ECDIS, BRM, and Security Awareness are widely available globally through numerous maritime training centres. The requirements for entering these courses assume previous basic knowledge, although no evidence of such knowledge is formally required [8,10].

In contrast, the DP training scheme is offered only through Nautical Institute-accredited centres, which must meet stringent criteria regarding facilities, equipment, and instructor qualifications. While this ensures high-quality training, it may limit accessibility due to fewer accredited centres. The candidates must own one of the following STCW certificates of competence under Regulations II/1 - II/2 - II/3 Deck, Regulation III/1 - III /2 - III/3 - III/6 Engine and Regulation III/6 for ETOs [5].

4.2 *Instructor Qualifications*

In STCW courses, instructor qualifications are generally determined by national maritime authorities, leading to potential standard variability. Generally, the appointed instructor has to possess at least the micro-qualification he/she intends to lecture.

The DP training scheme, however, mandates that instructors possess specific DP experience and undergo regular assessments to maintain their accreditation. This requirement ensures that instructors are not only knowledgeable but also current with industry practices.

4.3 *Control of Materials and Equipment*

The control and standardisation of training materials and equipment play a vital role in ensuring the quality and effectiveness of maritime education. In the case of STCW courses, instructional materials are often based on model courses developed by IMO. These resources are widely used and ensure a baseline of global consistency across training institutions. However, their standardised nature can also pose limitations in responding to rapid technological advances. Updating IMO model courses can be infrequent and slow to

reflect the pace of change in industry practices or equipment [11].

Conversely, the Dynamic Positioning (DP) training scheme administered by The Nautical Institute mandates using advanced and industry-relevant simulation technology. Training centres seeking accreditation must meet stringent hardware and software requirements, including full-mission or class-certified DP simulators that accurately replicate real-world operational environments [5]. These simulators must be capable of emulating various DP scenarios, including failures, adverse environmental conditions, and emergency procedures.

The Nautical Institute performs regular audits and evaluations to ensure accredited centres maintain high-fidelity equipment and instructional content standards. Centres must also keep simulator software updated in alignment with the latest system configurations used on active DP vessels. This ensures that trainees are familiar with generic DP principles and gain exposure to the types of interfaces, alarms, and control logics they are likely to encounter on board [12].

This high level of equipment realism significantly enhances the practical competence of DP operators. By training on systems that mirror real operational contexts, seafarers can develop the muscle memory and decision-making skills essential for complex positioning tasks. In contrast, many STCW courses, particularly those delivered through PowerPoint-based instruction or basic part-task simulators, may not offer the same operational immersion or technical specificity level.

Furthermore, the DP scheme's emphasis on continuous improvement allows for the swift incorporation of industry feedback and technological updates, which helps training centres remain aligned with evolving operational demands. This dynamic, feedback-driven approach offers a clear advantage in a field where equipment diversity and system complexity constantly increase.

4.4 Curriculum Updating

The ability to update training curricula in response to technological and operational developments is essential for maintaining the relevance and effectiveness of maritime education. However, updating STCW course content is inherently complex and time-consuming. Because the STCW Convention is a product of international agreement under the IMO, any changes to course content, competency standards, or model courses require consensus among member states. This process typically involves multiple rounds of consultations, sub-committee discussions, and formal adoption by the IMO Maritime Safety Committee (MSC) or the Sub-Committee on Human Element, Training and Watchkeeping (HTW).

As a result, revisions to STCW-related curricula, such as updates to Model Courses like ECDIS or Bridge Resource Management, can take several years to materialise. In fast-moving sectors like offshore operations, this lag may render training materials outdated by the time they are implemented, potentially

limiting the preparedness of seafarers for modern onboard systems or procedures [13].

In contrast, the Dynamic Positioning (DP) training scheme administered by The Nautical Institute operates under a much more agile framework. Because it is a privately regulated scheme rather than an international convention, the Nautical Institute has the autonomy to update its training standards and supporting documentation rapidly and unilaterally. When industry feedback, incident reports, or technological innovations emerge, updates to curriculum content, assessment criteria, or simulator scenarios can be issued within months rather than years.

This responsiveness is built into the scheme's structure. The Nautical Institute communicates closely with stakeholders, including DP equipment manufacturers, training centres, vessel operators, and industry associations. Through routine audits, feedback loops, and review boards, the Institute continuously evaluates the effectiveness of its training model. For instance, changes in system interfaces or alarm management protocols can be integrated into simulator exercises and course manuals shortly after they are adopted in the field.

Moreover, The Nautical Institute publishes revisions and bulletins through its Alexis Platform, ensuring that all accredited centres receive and implement updates consistently. This maintains uniformity across training providers and ensures that DP operators are always trained to the most current operational standards. In doing so, the DP scheme aligns closely with the dynamic nature of offshore industries, where operational conditions and technologies evolve rapidly.

The contrast between the relatively rigid update cycle of STCW courses and the agile, stakeholder-driven updating mechanism of the DP training scheme highlights one of the core strengths of the latter: its ability to remain relevant and operationally effective in a high-technology environment.

4.5 Certification Control

Certification control is critical in safeguarding maritime qualifications' credibility and reliability. Within the STCW framework, certificates of competency and proficiency are issued by national maritime administrations or designated authorities of individual flag states. While this decentralised model aligns with the sovereign rights of states over their maritime education systems, it also introduces variability in the rigour of verification processes, record-keeping, and anti-fraud measures. In some cases, discrepancies in documentation standards and oversight mechanisms can result in forged or improperly issued certificates being circulated, undermining trust in the international certification system [14].

Each flag state is responsible for maintaining its own registry and issuing certificates in compliance with STCW standards. However, administrative capacity, digital infrastructure, and regulatory enforcement differences lead to a lack of global uniformity in how certification data is stored, accessed,

and validated. Although efforts have been made to encourage greater transparency—such as the IMO's GISIS (Global Integrated Shipping Information System [15])—real-time, cross-border verification of credentials remains a challenge, particularly in remote inspection contexts or in jurisdictions with limited digital capabilities.

By contrast, The Nautical Institute has established a centralised and highly controlled system for managing the certification of Dynamic Positioning (DP) operators. All candidates undergoing DP training are issued a personal digital or physical logbook, which is used to record practical sea time, simulator courses, and task completion. These logbooks are uniquely numbered, tamper-evident, and subject to verification by accredited training centres and The Nautical Institute itself. Before issuing a DP certificate, The Nautical Institute's verification team reviews all submitted documents, including the logbook entries, course completion certificates, and onboard training signatures [5].

In addition to the secure logbook system, The Nautical Institute maintains a comprehensive digital database that tracks all DP operators who have been awarded certificates. This centralised database allows employers, flag states, and other stakeholders to authenticate a DP operator's certification status instantly using a unique certificate number. This transparency significantly reduces the risk of fraud, lost credentials, or misrepresented qualifications.

Moreover, The Nautical Institute has implemented robust audit protocols for training centres, ensuring that only institutions meeting strict equipment, instructor, and procedural standards can issue DP training documentation. Non-compliance can lead to suspension or revocation of accreditation, thus further safeguarding the certification process from systemic vulnerabilities.

The result is a certification system that not only meets high standards of integrity but also inspires greater industry confidence. In a high-risk operational domain like offshore dynamic positioning, where safety and precision are paramount, such centralised control ensures that certified DP operators possess verifiable, up-to-date competencies backed by an internationally recognised authority.

5 IMPLICATIONS OF INTEGRATING THE DP TRAINING SCHEME INTO STCW SECTION A

The potential integration of the Dynamic Positioning (DP) training scheme into Section A of the STCW Convention carries significant implications for maritime training standards, certification processes, and industry practices. This section explores the prospective benefits, challenges, and considerations associated with such a transition.

5.1 Enhanced Standardisation and Global Recognition

Incorporating the DP training scheme into STCW Section A would establish it as a mandatory qualification, promoting uniform training standards and certification processes worldwide. This alignment

could facilitate mutual recognition of DP certifications among flag states, enhancing the mobility of DP operators and ensuring consistent competency levels across the global maritime industry.

5.2 Regulatory Oversight and Quality Assurance

Transitioning to Section A would subject the DP training scheme to the regulatory frameworks and oversight mechanisms of the International Maritime Organization (IMO) and national maritime administrations. While this could bolster quality assurance through standardised curricula and assessment protocols, it may also introduce bureaucratic complexities that could impact the agility of the training scheme in adapting to technological advancements and industry needs.

5.3 Impact on Training Providers and Accreditation

Training centres currently accredited by The Nautical Institute (NI) would need to align with the broader accreditation requirements stipulated under STCW Section A. This could entail modifications to training facilities, instructor qualifications, and course content to meet the standardised criteria. While this alignment could enhance the credibility of training providers, it may also impose additional administrative and financial burdens, particularly for smaller institutions.

5.4 Certification and Record-Keeping

Under STCW Section A, the issuance and management of certifications would likely fall under the purview of national maritime authorities. This shift could affect the centralised certification system currently maintained by the NI, potentially leading to variations in certification processes and record-keeping practices among different jurisdictions. Ensuring the integrity and consistency of DP certifications would necessitate robust coordination among international regulatory bodies.

5.5 Flexibility and Responsiveness to Industry Needs

One of the strengths of the current NI-administered DP training scheme is its ability to swiftly incorporate industry feedback and technological developments into training standards. Integrating the scheme into STCW Section A could potentially reduce this flexibility, as changes would be subject to the formal amendment procedures of the STCW Convention, which can be time-consuming. Balancing standardisation with the need for responsiveness would be critical in such a transition.

6 DISCUSSION: STRENGTHS, CHALLENGES, AND FUTURE PERSPECTIVES

The comparative evaluation of the Dynamic Positioning (DP) training scheme against micro-qualifications listed in Section A of the STCW Convention reveals a pronounced strength in the DP system's structure and enforcement mechanisms. This section explores the key takeaways from the analysis

and reflects on the broader implications for the maritime education and certification system.

6.1 Superior Framework of the DP Training Scheme

The DP training scheme, administered by The Nautical Institute (NI), is designed with rigorous quality assurance. Centralised control, mandatory simulator use, standardised logbooks, and regular audits of accredited centres ensure high consistency and integrity in training outcomes. Unlike many STCW micro-qualifications that rely heavily on individual flag states for enforcement, the DP scheme's global standardisation helps minimise variability, reducing the risk of certificate fraud or skill mismatch across jurisdictions.

6.2 Advantages in Curriculum Flexibility and Technological Responsiveness

A crucial advantage of the current DP system is its ability to adapt rapidly to emerging technologies and operational challenges. NI can issue certification standards or course content updates without waiting for international consensus, as required under the STCW Convention. This agility is particularly valuable in a fast-evolving technical field like dynamic positioning, where systems are frequently updated, and operators must remain current with complex software and hardware integrations.

In contrast, STCW courses, though robust, are often hindered by slower amendment cycles. For instance, the delay in mandatory ECDIS training implementation following the technological rollout created inconsistencies in officer competence during the transitional period [4].

6.3 Challenges of Shifting to Section A

While moving the DP scheme under Section A could confer the legitimacy and universality of the STCW Convention, it also risks introducing regulatory inertia. Standardisation across countries may dilute some current strengths—particularly in responsiveness, enforcement stringency, and uniformity of assessment criteria. National differences in the interpretation and implementation of STCW provisions may undermine the training's efficacy [16].

Furthermore, a transition could strain existing training providers who might struggle to meet both NI and IMO/flag-state requirements simultaneously. It may also complicate the centralised certification process, which currently helps track operators and minimise fraudulent entries in the profession.

6.4 Potential for Hybrid Regulation

A possible middle ground may lie in a hybrid approach: recognising the DP scheme under Section A as a mandatory qualification while retaining The Nautical Institute's role in course oversight and certification issuance. Similar arrangements already exist for some specialised maritime qualifications (e.g., oil tanker endorsements), which are administered by industry organisations under IMO frameworks [17]. This model would allow STCW-level standardisation

while preserving the DP scheme's operational strengths.

6.5 Implications for Future Maritime Training Standards

The broader implication of this study is the need for future STCW revisions to be more agile and technologically attuned. The DP model demonstrates how decentralised oversight can outperform centralised systems when backed by rigorous auditing and global standards. Integrating such models into the international regulatory framework could serve as a blueprint for future high-tech competencies in the maritime sector—such as remote operations, unmanned systems, and AI-supported navigation.

7 CONCLUSIONS

This paper has examined the Dynamic Positioning (DP) training scheme The Nautical Institute administers, comparing it with micro-qualifications currently listed under Section A of the STCW Convention. The comparison focused on several core criteria: access to training, instructor qualifications, control of materials and equipment, curriculum adaptability, and certification oversight.

The analysis indicates that the DP training scheme consistently demonstrates high effectiveness and rigour across all evaluated dimensions. Its centralised structure, strict accreditation standards, and rapid update mechanisms contribute to a system that is both responsive to technological advances and robust in maintaining training quality and certification integrity.

By contrast, the formal structure of Section A qualifications under the STCW Convention, while offering international legal standing and standardisation, may limit the flexibility required for schemes such as DP training. The multilateral nature of the regulatory process, the variation in national implementation, and the slower pace of curriculum revisions could present significant challenges to the continued agility and relevance of the DP scheme if it were integrated into Section A.

Based on this evaluation, it appears that the current positioning of the DP scheme under Section B provides a balanced and effective framework. It allows the training system to remain closely aligned with industry developments while still maintaining international visibility and alignment with recognised training principles. The model exemplifies how high-specialisation training programs can operate successfully outside Section A's more rigid regulatory frameworks without compromising quality or credibility.

In light of these findings, maintaining the DP training scheme under the oversight of The Nautical Institute within the flexible structure of Section B appears to best support its continued success. It may also serve as a reference for other emerging qualifications requiring similar specialisation, responsiveness, and integrity levels in a rapidly evolving maritime environment.

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