



## DYNAMIC POSITIONING

### ACCREDITATION AND CERTIFICATION SCHEME STANDARD

*Effective Date 1<sup>st</sup> January 2017*

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DYNAMIC POSITIONING ACCREDITATION AND CERTIFICATION SCHEME STANDARD  
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# **INTRODUCTION TO THE DYNAMIC POSITIONING OPERATOR TRAINING STANDARD**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **1. INTRODUCTION TO THE DYNAMIC POSITIONING OPERATOR TRAINING STANDARD**

This document provides guidance on the Dynamic Positioning Operator (DPO) training scheme for providers wishing to be accredited to deliver training and for prospective DPOs.

The DP Accreditation and Certification schemes were developed by The Nautical Institute (the NI); working in association with flag states, the oil industry, the diving industry and offshore contractors to establish internationally accepted standards. It has been operational for the past 30 years.

The NI's Dynamic Positioning Operator (DPO) training scheme is an industry recognised professional development route to becoming a qualified DPO. The scheme is managed by the NI for the benefit of the industry and includes the DPO certification criteria, certification processes, and the accreditation of the training providers against agreed standards. Until 2013, it was the only training scheme for DPOs accepted internationally by the offshore industry and DPOs certified by the NI are often stated as a requirement by DP vessel charterers.

In September 1983, the scheme was adopted as an internationally accepted standard for any DSV or other DP-operated vessel working within 500 metres of any offshore installation by 105 out of 110 oil industry and major oil company representatives at a working conference in Aberdeen. It was rapidly recognised by the oil Industry on a worldwide basis. Less than a month after the Aberdeen conference, the scheme was accepted as an official guideline by the then Minister of Energy for the UK North Sea operations. Shortly after, it was also adopted by other North Sea operating flag states.

The NI has developed this Standard in view of the IMO including DP training within Part B of the STCW Code & Convention (Annex 1). These standards have been developed and kept up-to-date with the full engagement and cooperation of all key stakeholders by working through the Dynamic Positioning Training Executive Group (DPTEG) and its Regional Training Provider (RTP) groups.

### **1.1 THE INTERNATIONAL SAFETY MANAGEMENT CODE (ISM) AND DYNAMIC POSITIONING (DP) TRAINING**

The scheme is considered as initial training towards the DP Certificate. Further training and experience should be provided by the company as per IMCA M117 guidelines and the ISM Code.

The objectives of the ISM Code are to ensure safety of life at sea, prevent human injury or loss of life and avoid damage to the environment, in particular to the marine environment.

All companies operating and/or owning ships must:

- Provide for safe practices in ship operations and a safe working environment.
- Establish safeguards against all identified risks.
- Continuously improve safety management skills of personnel ashore and on board ships, including preparing for emergencies related to both safety and environmental protection.
- Comply with all mandatory rules and regulations.
- Ensure that applicable codes, guidelines and standards recommended by IMO, Flag states, Classification Societies and marine organisations are taken into account.

Therefore, in regard to DP training, the ship operator, whether owner or charterer, **must** ensure that the DPO undertakes the required initial training, including shore courses (Induction and Simulator), and also that the operator is completely familiar with the equipment installed on the ship, both for normal operations and emergency situations.

The NI does not provide DP training; rather it accredits the training institutions to provide training to trainee DPOs. A list of accredited DP training providers can be found on the NI's website: <http://www.nialexisplatform.org>

The DP Operator training scheme is based upon the completion of a number of components and the participation of many parties, namely the prospective DPO, the vessel owner/operator, the Master and DPOs

of DP vessels and the training centres. This document provides guidance to these parties on the requirements and operation of the scheme. The NI issues the final DP Certificate to prospective DPOs upon satisfactory completion of all training phases.

This certification scheme applies to prospective DPOs who started the new Offshore scheme after 1<sup>st</sup> January 2015 and hold the Grey logbook.

The old Offshore scheme refers to those who started training before 1<sup>st</sup> January 2015 and who hold the A6 Blue/Green and A5 Black logbooks. Details are on the NI Alexis website.

## 1.2 THE COMPOSITION AND ROLE OF DPTEG

In order to ensure that the scheme continues to meet current industry needs, DPTEG was established to facilitate communication and input from a broad range of stakeholders.

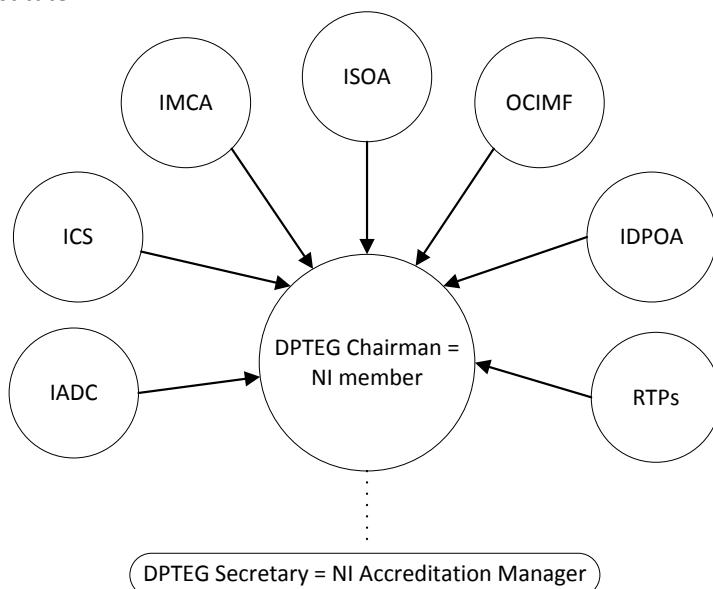
The group is a pan-industry forum of training providers, trade organisations and professional associations which have a remit or interest in DP training. It is self-funded by raising fees from accredited DP training providers, and currently meets twice a year.

The remit of DPTEG is to:

- Review and develop the DP Operator training scheme in respect to an ever changing maritime industry and regulatory environment.
- Evaluate its effectiveness in providing the DP industry with trained DP Operators.
- Make decisions and implement actions to improve the DP Operator training scheme and promote best practice.
- Make decisions on a consensus basis.
- Promote the standing of the DPO training scheme in the best interests of the industry.

DPTEG Member organisations are:

- International Association of Drilling Contractors (IADC)
- International Chamber of Shipping (ICS)
- International Dynamic Positioning Operators Association (IDPOA)
- International Marine Contractors Association (IMCA)
- International Support Vessel Owners' Association (ISOA)
- Oil Companies International Marine Forum (OCIMF)
- Accredited DP training providers represented by their regional representative in the area (RTPs America, Europe and Asia)
- The Nautical Institute.



Other organisations may be invited to join DPTEG, as appropriate. The DPTEG operates in accordance with the Terms of Reference for this group. See Annex 13 for guidance and procedures.

### **1.3 THE ROLE OF THE NAUTICAL INSTITUTE**

The NI facilitates the accreditation of DP training centres, the certification of DPOs and consensus building among DPTEG members and administers the schemes in accordance with the criteria agreed by DPTEG.

### **1.4 THE ROLE OF REGIONAL TRAINING PROVIDERS (RTP)**

The training providers are located throughout the world. Since they are widely dispersed and it would be unrealistic for all training providers to gather in one location, the centres were grouped into broad regions. These regions are:

- The Americas
- Europe and Africa
- Asia and Australia

Each region elects a group representative/coordinator whose job it is to inform the group of DPTEG developments and gather group concerns/responses in order to relay these to DPTEG or ask that they be included in the DPTEG meeting agenda. Communication with training providers in their region is accomplished by email or web forum contact and relayed using the same means to the DPTEG Chairman or other people/groups as appropriate.

Every year each of the three regions holds an RTP meeting. Each training centre must send a representative to a meeting at least once every three years as a condition of accreditation. If a training centre does not send a representative, the centre can relay its concerns/responses through the regional representative/coordinator. Not sending a representative at least once every three years is grounds for withdrawal of accreditation.

RTPs operate in accordance with The Terms of Reference for this group. See Annex 14 for guidance and procedures.



## **OFFSHORE TRAINING SCHEME**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **2. OFFSHORE TRAINING SCHEME**

### **THE DP OFFSHORE TRAINING SCHEME**

By completing the Offshore training scheme the DP Operator may receive one of the 3 types of DP Certificate:

1. Unlimited Certificate: for training completed on board vessels classed DP 1/2/3 where at least 60 DP sea time days have been completed on vessels of DP Class 2 or 3.
2. Limited Certificate: for training completed on board vessels classed DP1/2/3 where less than 60 DP sea time days have been completed on vessels of DP Class 2 or 3.
3. Restricted to Unclassed vessels: for training completed on board vessels of Unclassed DP, DP Class 0 or a mix of experience on board classed and Unclassed vessels where insufficient time has been completed to be eligible for one of the other certificates.

### **DYNAMIC POSITIONING OFFSHORE SCHEME COURSES**

#### **INDUCTION COURSE**

(See Appendix B)

This course involves both theory and practice on a simulated DP system and covers the following topics:

- Principles of DP
- Elements of the DP system
- Practical operation of the DP system
- Position reference systems
- Environment sensors and ancillary equipment
- Power generation and supply and propulsion
- DP operations.

#### **SIMULATOR COURSE**

(See Appendix B)

This course principally involves simulated DP operations including errors, faults and failures, giving the participants the opportunity to apply the lessons learnt in both the Induction Course and subsequent DP sea time days.

It covers the following topics:

- Practical operation of the DP system
- DP operations
- DP alarms, warnings and emergency procedures.

#### **SEA TIME REDUCTION COURSE (STR)**

(See Appendix B)

The period of supervised DP watchkeeping during the second block of DP sea time may be reduced on the satisfactory completion of an intensive DP Simulator training course.

#### **REVALIDATION COURSE**

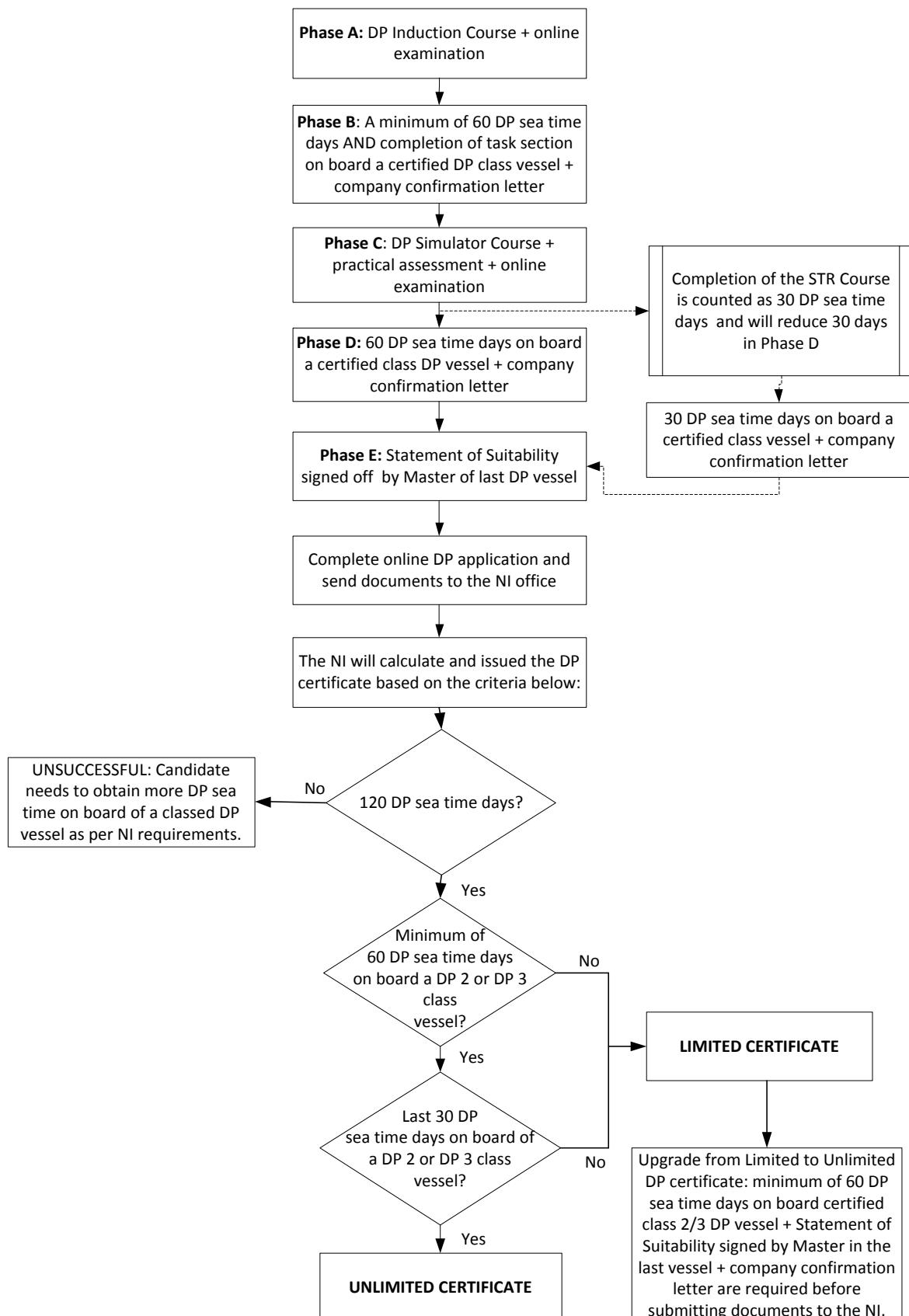
(See Appendix F)

This course allows a certified DPO to revalidate without the sea time requirement when taken for the first time, or when taken after a subsequent revalidation with 150 DP sea time days.

## **OFFSHORE LIMITED/UNLIMITED DP CERTIFICATE FLOWCHART**

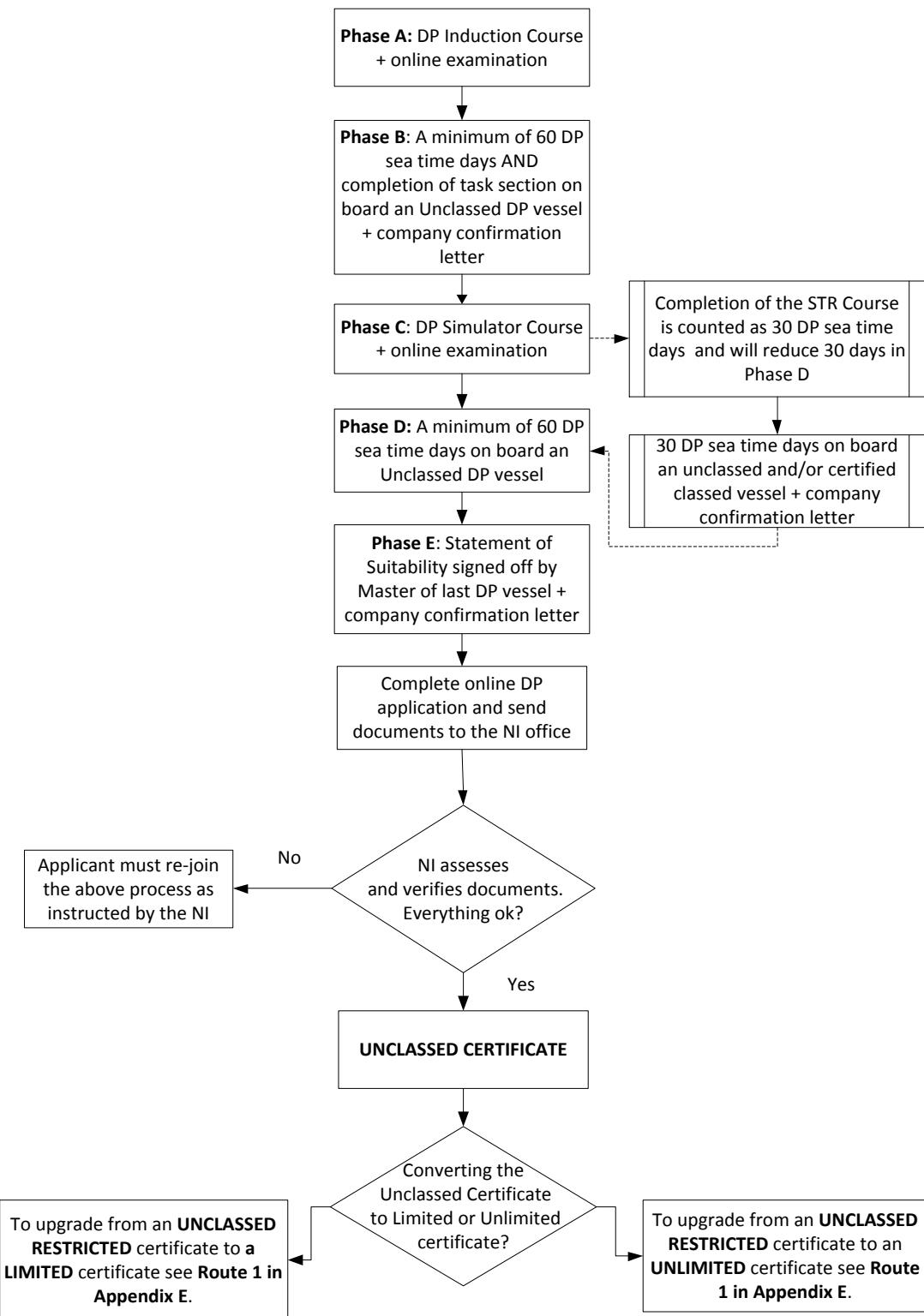
The components of the scheme are set out in the following flowchart. To obtain a DP Operator Certificate (Limited and Unlimited) the route outlined below must be followed.

The old scheme route to obtain a DP Operator Certificate can be found on our website on the DP Help Page <http://www.nialexisplatform.org/dp-help-page/offshore/requirements/>



## **OFFSHORE UNCLASSED DP CERTIFICATE FLOWCHART**

The route that must be followed in order to obtain a DP Operator Certificate (restricted to Unclassed vessels):





# **SHUTTLE TANKER TRAINING SCHEME**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

### **3. SHUTTLE TANKER TRAINING SCHEME**

#### **GENERAL OVERVIEW**

By completing the Shuttle Tanker training scheme the DP Operator will receive a Shuttle Tanker Certificate. This type of certification is restricted to DPOs who have completed their DP training on board DP shuttle tanker vessels.

Shuttle Tanker training and the definition of sea time is completely different to the Offshore training scheme and trainees should look carefully at these differences. Shuttle Tanker training has a total of 11 phases to be completed by the trainee DPO as described in Appendix C.

#### **SHUTTLE TANKER TRAINING SCHEME COURSES A and B**

(See Appendix C)

The Shuttle Tanker training scheme requires the trainee to complete the Induction and Simulator Courses required of all other DP trainees. In addition, Shuttle Tanker trainees must complete three additional courses:

##### **1. COURSE A**

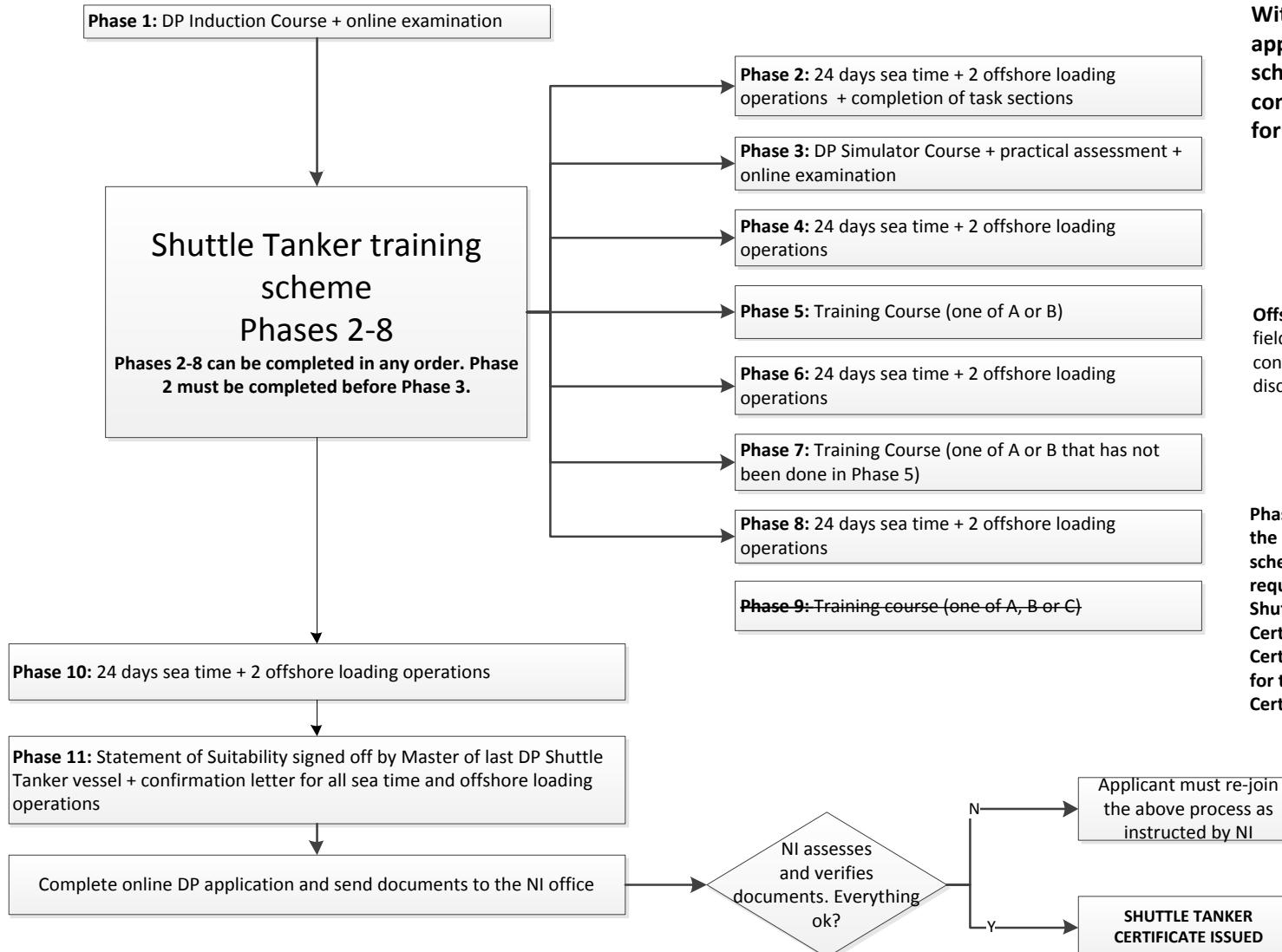
One or two day training courses which are provided by either the training centres or the manufacturers of Position Reference Systems (PRS). These courses are recognised, not accredited, by the NI. More information regarding recognition of a course can be found on our website <http://www.nialexisplatform.org/recognition/>.

##### **2. COURSE B**

This is a five-day simulator training course with a minimum of 30 hours of instruction that concentrates on shuttle tanker specific behaviours and includes exercises for a range of offshore loading installation types. This course is accredited by the NI.

## **SHUTTLE TANKER DP CERTIFICATE FLOWCHART**

The components of the scheme are set out in the following flowchart. The route that must be followed in order to obtain a Shuttle Tanker Certificate (restricted to Shuttle Tankers).



**With effect from 1<sup>st</sup> January 2017, applicants on the Shuttle Tanker training scheme will no longer be required to complete Course C previously required for this qualification.**

**Offshore loading operations:**  
field arrival, set-up approach, connection, loading, disconnection and departure

**Phase 9 is no longer required for the Shuttle Tanker training scheme. Course C will now only be required for conversion from a Shuttle Tanker Restricted Certificate to an Offshore Certificate if it was not completed for the original Shuttle Tanker Certificate.**



## ACCREDITATION

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **4. ACCREDITATION**

In the process of accrediting a training centre to deliver the above courses, auditors selected by The Nautical Institute (the NI) will assess and verify the centre's administrative and record-keeping processes, the training and experience of the instructors, the physical environment of the centre and the simulators/classroom equipment used to deliver courses to meet their requirements.

### **4.1 DEFINITIONS**

**Accreditation** is defined by the NI as the systematic verification of the processes, procedures, methods and techniques employed to deliver a maritime training product or service in accordance with standards defined, co-developed and approved by the NI with industry stakeholders.

Accredited training providers have demonstrated that their product or service meets the standard required for NI accreditation. This award is valid for a period of not more than three years.

**Shall** - throughout this document this term will refer to an aspect that is mandatory and deemed necessary by the NI.

**Should** - throughout this document this term will refer to an aspect that is recommended by the NI.

**May** - throughout this document this term will refer to an aspect that is considered optional by the NI

**To assess** - is to evaluate the nature, ability or quality of the object assessed.

**To verify** - is to prove the truth of a matter by presentation of evidence or testimony; to check the accuracy of the object examined.

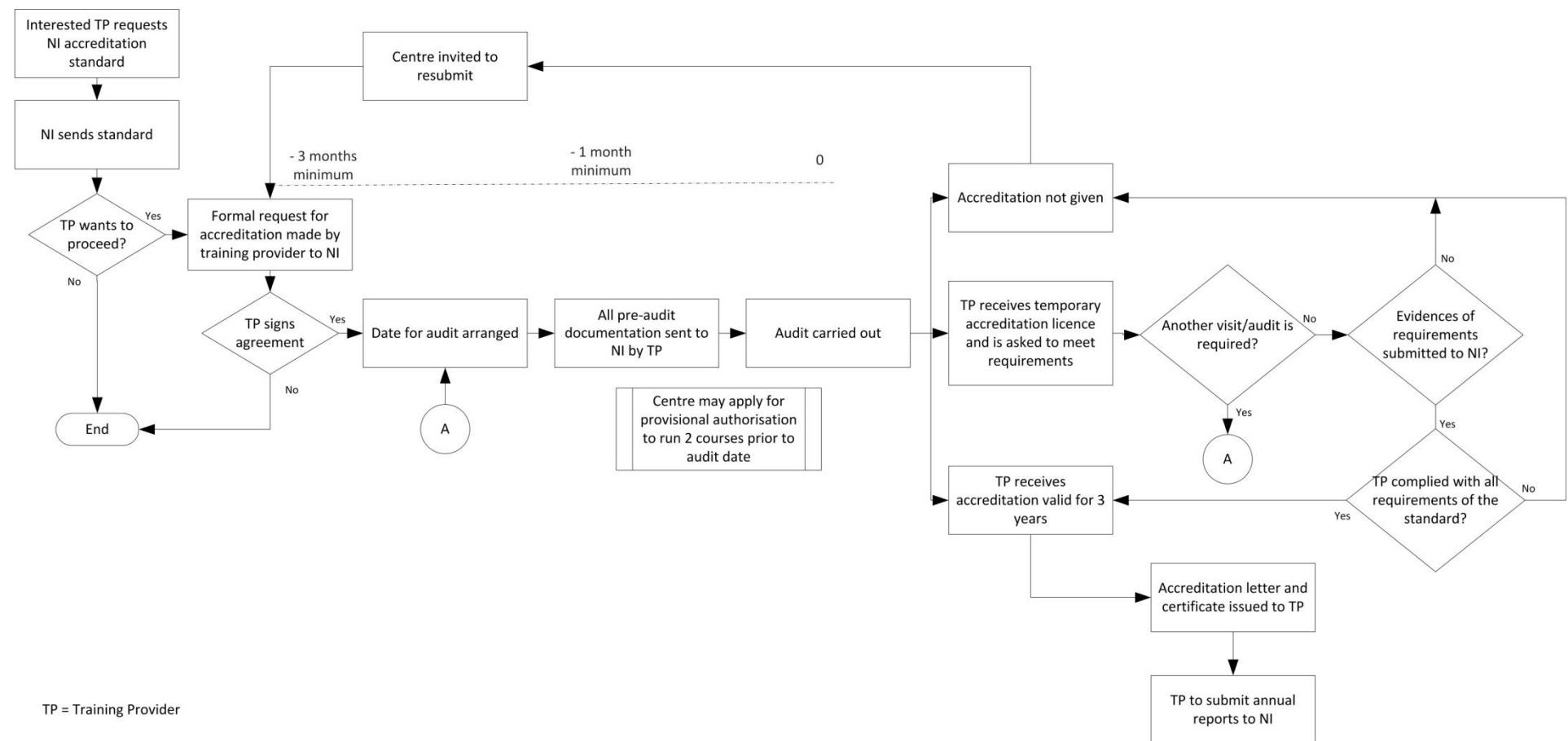
**To approve** - is to have a positive opinion that something is good or acceptable.

### **4.2 WHAT IS ACCREDITED?**

The NI uses the process of accreditation to determine compliance with the requirements of this Standard and includes systematic audit of the following:

- Course content
- Centre facilities
- Instructors
- Administrative and organisational elements
- Health and Safety
- Simulators and equipment.

### 4.3 OVERVIEW OF THE NAUTICAL INSTITUTE ACCREDITATION PROCESS



### 4.4 THE PROCESS FOR ACCREDITATION BY THE NAUTICAL INSTITUTE

For detailed information relating to the NI's accreditation process for training centres please refer to Annex 3.



## **APPENDIX A**

### **MINIMUM QUALIFICATION REQUIREMENT**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## APPENDIX A - MINIMUM QUALIFICATION REQUIREMENT

Following the 2010 Manila amendments to the STCW Convention and Code, The Nautical Institute (the NI) has implemented the following criteria for entry into the DP Operators training scheme:

The minimum qualification is set at STCW Regulation II/1 - II/2 - II/3 Deck, Regulation III/1 – III /2 – III/3 – III/6 Engine and Regulation III/6 for ETOs

STCW	DEFINITION
II/1 Deck	Officers in charge of a navigational watch on ships of 500 GRT or more.
II/2 Deck	Master or chief mate on ships of 3,000 GRT or more.
II/3 Deck	Officers in charge of a navigational watch and Masters on ships of less than 500 GRT.
III/1 Engine	Officers in charge of an engineering watch in a manned engine-room or designated duty engineers in a periodically unmanned engine-room.
III/2 Engine	Chief engineer officers and second engineer officers on ships powered by main propulsion machinery of 3,000kW propulsion power or more.
III/3 Engine	Chief engineer officers and second engineer officers on ships powered by main propulsion machinery of between 750kW and 3,000kW propulsion power.
III/6 ETO	Electro-Technical Officer

Alternative appropriate **Marine Vocational Qualifications (MVQs)** will be considered on a case by case basis. The NI defines an MVQ as a *non-STCW Certificate of Competency issued by a white list Maritime Administration for use in the administration's local waters only*.

Naval Officers with appropriate watch keeping qualifications and those whose qualification can be found on the approved list may be accepted into the training scheme without pre-approval or reference to NI. The approved list can be found on the website <http://www.nialexisplatform.org/dp-help-page/offshore/guidance-application/>. It is recommended that training centres and prospective DPOs check the qualifications with the NI in case of any doubt.

### Officer trainees (Cadets or ratings on a defined training programme)

- Prospective Offshore DPOs on the new scheme who are in the process of training for an STCW certificate may complete, the Induction Course (Phase A), the 60 DP sea time days (Phase B) and the Simulator Course (Phase C). The remaining 60 DP sea time days (Phase D) and the subsequent suitability sign-off (Phase E) shall only be completed after they hold an appropriate STCW Certificate of Competency.
- Candidates who completed Phase B when they were a Cadet are not allowed to claim for STR in Phase D of the training scheme and must complete a minimum of 60 DP sea time days in Phase D.
- Prospective DPOs on the Shuttle Tanker scheme who are in the process of training for an STCW certificate may complete, the Induction Course (Phase 1), the 24 sea time days and two offshore loading operations (Phase 2), the task section (Phase 2) and the Simulator Course (Phase 3). The remaining phases shall only be completed after they hold an appropriate STCW Certificate of Competency.

These rules are effective from 1<sup>st</sup> January 2015 and reflect changes introduced from 1<sup>st</sup> January 2016 and apply to those who have already commenced training on the new scheme as well as new starters. The time permitted to complete the training scheme for those who commenced the Induction Course after 1<sup>st</sup> January 2015 is four years.

Centres should keep electronic copies of students' documentation for audit purposes as well as for reference should any questions arise at a later stage in the student's application process.

*Note for information*

Prospective DPOs who are not Officer Trainees or certified Officers will be able to apply for certification if they commenced training prior to the implementation date (1<sup>st</sup> January 2012) and all elements have been completed within a five-year period at the time of application.

**MARINE VOCATIONAL QUALIFICATION (MVQ):** Before starting the Induction Course, the candidate shall present his/her documents to the training centre. If these do not meet the minimum requirements as set out in this document, training centres will advise the candidate to contact the NI for official approval to attend the course. The candidate shall provide a copy of the documents of competency or proficiency and/or any other relevant document as evidence of qualification. The NI will assess those and may or may not issue an authorisation letter to the candidate to start the course. This procedure shall be undertaken before the candidate starts the Induction Course. Some MVQs do not require an authorisation letter these are listed on the website <http://www.nialexisplatform.org/certification/>.

**STCW CERTIFICATE OF COMPETENCY:** Training centres are required to ask for, and keep, a copy of the Certificate of Competency of their students before accepting them onto the Induction Course and the DP scheme. The Certificate of Competency number should be noted and properly recorded by the centre in the student record as well as in the logbook provided to them. The NI will require a copy of the Certificate of Competency when receiving their application to cross-check the information.

**OFFICER TRAINEES (Cadets or ratings on a defined training programme):** Officer trainees should present proof, such as a letter from the company employing them or the college they are attending, indicating that they are on STCW or MVQ training before joining the Induction Course.

### **STCW LIMITATIONS ON THE REVERSE OF THE DP CERTIFICATE**

From 1<sup>st</sup> January 2012 to 31<sup>st</sup> December 2014, DP Certificates were endorsed with the following:

**Valid for use in accordance with the privileges of the holder's Certificate of Competency.**

From 1<sup>st</sup> January 2015 DP Certificates were issued with the revised sentence:

**DP Certificate valid for use in accordance with the privileges of the holder's Certificate of Competency and/or Certificate of Proficiency.**

From 1<sup>st</sup> January 2017 this endorsement will be used on all new and revalidated DP Certificates.

*This means that the holder can only use the DP Certificate within the limitations allowed by their Certificate of Competency or Proficiency. This is to allow operators who possess non-STCW local Certificates of Competency or Proficiency to operate small DP vessels to the limits allowed on those certificates, i.e. within restricted areas/limits from the coast of the issuing state on vessels of a certain size only.*

### **THE OLD AND THE NEW TRAINING SCHEME RULES**

The old scheme and its policies will remain valid for those who started training prior to 1<sup>st</sup> January 2015. All trainee DPOs who started the training scheme before January 2015 will have their training assessed according to the old DP scheme rules.

Trainee DPOs who started the training scheme from 1<sup>st</sup> January 2015 (i.e. the Induction Course) will carry on training under the criteria and conditions set up for the new training scheme.



## **APPENDIX B**

## **DP OFFSHORE TRAINING SCHEME**

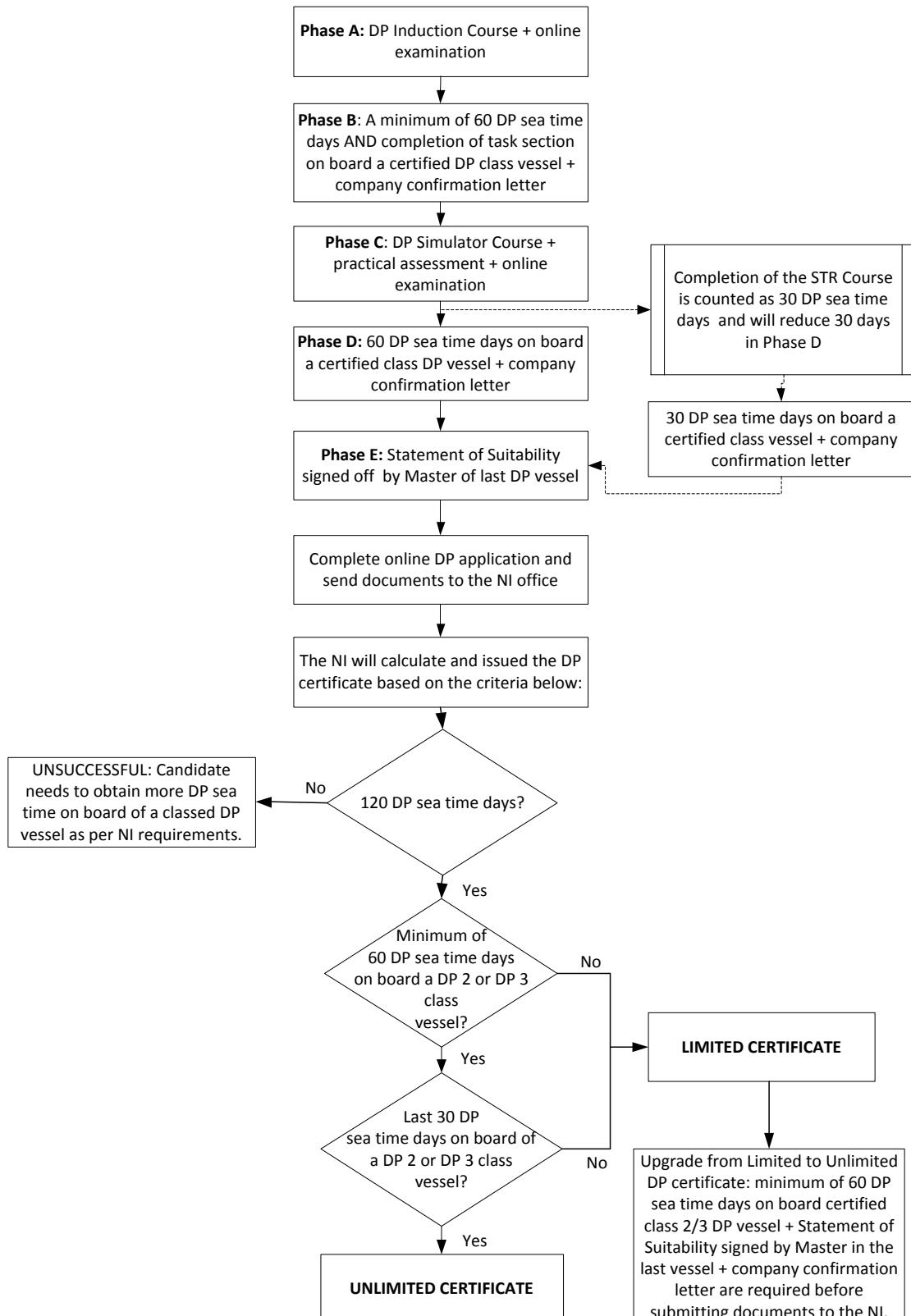
**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## APPENDIX B - DP OFFSHORE TRAINING SCHEME

### OFFSHORE LIMITED/UNLIMITED DP CERTIFICATE FLOWCHART

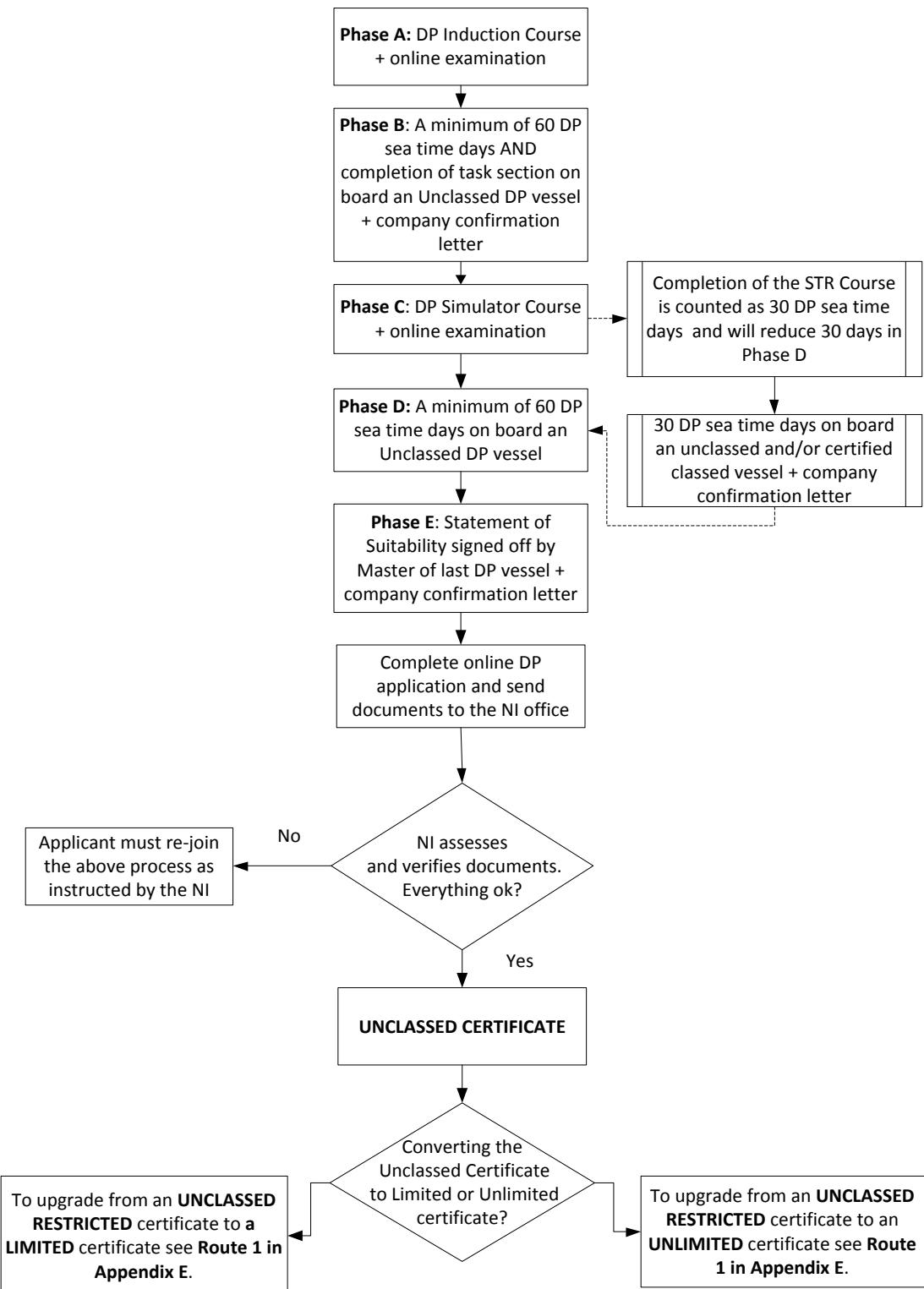
The components of the scheme are set out in the following flowchart. To obtain a DP Operator Certificate (Limited or Unlimited) the route outlined below must be followed.

The old scheme route to obtain a DP Operator Certificate can be found on our website on the DP Help Page <http://www.nialexisplatform.org/dp-help-page/offshore/requirements/>.



## **OFFSHORE UNCLASSED DP CERTIFICATE FLOWCHART**

The route that must be followed in order to obtain a DP Operator Certificate (restricted to Unclassed vessels):



## **1. COURSES IN THE OFFSHORE SCHEME**

The list of training centres approved for the delivery of these courses may be found on The Nautical Institute's (the NI) website.

The following courses cannot be taken in consecutive weeks (back-to-back) unless they are being repeated. This is because the DP sea time after each course gives the prospective DPO the opportunity to reinforce, consolidate and put into practice skills learned during the courses.

Induction and Simulator Courses must be undertaken within four years of the date of the application and submission of documents to the NI. In the event that any of these courses fall outside of the four year period, the trainee will be required to repeat the expired course.

### **1.1. INDUCTION COURSE (PHASE A)**

On successful completion of both the Induction Course and Induction online exam, the trainee DPO will be issued with a NI DP logbook in which the courses, DP sea time, tasks and the Statement of Suitability are recorded. The subsequent DP sea time following the Induction Course provides the opportunity to complete the task sections in the logbook.

The new grey logbook is only issued to trainee DPOs that started their training after 1<sup>st</sup> January 2015. Trainee DPOs who have entered into the training scheme before this date or are repeating the Induction Course shall continue to use their existing logbooks.

#### **1.1.1. DP SEA TIME OBTAINED BEFORE THE INDUCTION COURSE**

Trainee DPOs attending an Induction Course after 1<sup>st</sup> January 2015 will only be permitted to count DP sea time gained after attending the course. Applications received at the NI under the old scheme rules will be evaluated and honoured by the previous regulation.

#### **1.1.2. NUMBER OF HOURS**

A minimum of 28 hours teaching time is required for this course; if additional time is required to run exams or deal with paperwork, this time shall be added to the 28 hours. It is expected that 80% of the time is spent on teaching DP theory and 20% on practical exercises. Usually the Induction Course is delivered over four or five days. There is an option to deliver the course over a maximum six-week period, with instruction taking place on a given day in each of those weeks. This option is particularly suited to cadet training institutions as it allows the training to fit into the already existing class schedule. In all other aspects the course must conform to all other training scheme standards.

#### **1.1.3. RATIO OF STUDENTS/INSTRUCTORS/EQUIPMENT**

The number of students attending the Induction Course must be regulated so that each student obtains sufficient 'hands-on' experience of operating the system to ensure adequate familiarisation with the principles of DP operation. In order to achieve this, the NI allows a maximum of eight students per class being taught by one instructor. If more than eight students are enrolled on the course, a second instructor will be required to assist with practical exercises. In this case, the name and signature of the second instructor should be reflected in the attendance list of the course and practical exercises.

Centres are allowed to seat two students per DP console, which is sufficient to reconcile the availability of equipment and the need to provide sufficient hands on experience. If this is the case, the ratio for the Induction Course is one instructor to eight students and four DP consoles.

#### **1.1.4. DELIVERY METHOD**

At the start of the Induction Course the NI DP Operator training scheme is to be outlined, including the need to maintain the logbook and the procedure for obtaining a DP Operator Certificate.

The Induction Course is predominantly theory-based with guided practical exercises that introduce the trainee to various DP operational modes. The topics to be covered on the Induction Course are to include:

- General principles of dynamic positioning.
- The elements of a DP system:
  - Computers and control elements
  - Position reference systems
  - Heading reference systems
  - Wind sensors and other environment reference systems
  - Power generation elements. The UPS
  - Thrusters and manoeuvring systems.
- Position reference systems and other sensors; their principles of operation, their use, operational merits and limitations.
- Practical demonstration and operation of a typical DP system.
- DP vessel operations: hazards associated with certain types of operation, e.g. shallow water and strong tides.
- Power generation, distribution and management.
- DP watch keeping and watch handover procedures, documentation and communications.

The practical element of this course requires the use of a DP system installed in the training centre and delivered with an adequate level of simulation. This equipment must meet the requirements set out in Annex 7. The minimum equipment required for the Induction Course is Class C simulators.

#### **1.1.5. COURSE AIMS**

At the end of the course the student should:

- Have acquired knowledge of the principles of DP.
- Have acquired a basic understanding of how to set up a DP system.
- Have an understanding of the practical operation of associated equipment, including position reference systems.
- Be able to recognise the various alarm, warning and information messages.
- Be able to relate the DP installation to the ship system, including (but not limited to) power supply, manoeuvring facility, available position reference systems and nature of work.
- Be able to relate DP operations to the existing environmental conditions of wind, sea state, current/tidal stream and vessel movement.

#### **1.1.6. COURSE OBJECTIVES**

The following is a list of the objectives to be attained by trainee DPOs by the successful completion of the Induction Course.

**By the completion of the training session or period for the DP control station the trainee should be able to:**

1. Define Dynamic Positioning.
2. Explain the need for Dynamic Positioning in various types of vessel.
3. Describe the six freedoms of movement of a vessel.
4. State which of the six freedoms of movement are controlled under DP and which are monitored.
5. Describe the following aids to manoeuvring commonly fitted to DP vessels, including their practical and operational advantages and disadvantages: fixed and controllable-pitch propellers, azimuth thrusters, Azipod thrusters and tunnel thrusters.
6. List the seven main components of a DP system; DP Operator, DP computer (or controller), DP Operator station, position reference systems, sensors, power supply and thrusters.
7. Describe the various modes of DP operation, including manual control, semiautomatic control and automatic control. In addition, describe the following common specialist functions: ROV follow (follow sub), follow target, track follow (autotrack), minimum power (weathervane) and riser angle mode.

8. Discuss the concept of mathematical modelling of vessel behaviour characteristics and appreciate the advantages and limitations/disadvantages of this technique.
9. Outline the power requirements of a DP vessel system and describe a typical diesel-electric power installation.
10. Describe the following position reference systems commonly associated with DP installations: INS, Differential GNSS, hydroacoustic, taut wire, Artemis, FMCW Radar and laser-based systems.
11. Describe the following sensors associated with DP installations: vertical reference sensor/unit, motion reference unit, gyro compass, wind sensor (anemometer) and manual draught input sensor.
12. Describe the concept of centre of rotation and the provision of alternative centres of rotation.
13. Describe consequence analysis as carried out by a Dynamic Positioning system.

**By the completion of the training session or period, for the power generation and management the trainee should be able to:**

14. Describe the power generation and distribution arrangements in a typical diesel-electric DP vessel, with particular reference to system redundancy as described in IMO MSC Circ. 645 and vessel FMEA.
15. Describe the power supply and distribution arrangements in a typical hybrid diesel/diesel-electric DP vessel. (Main CPP or Az drive which are direct drive)
16. Recognise the power requirements of DP vessels and explain the concept of available power and spinning reserve in worst case failure.
17. Describe the functions of a power management system as installed on Class 2 and Class 3 DP vessels.
18. Describe the provision of uninterrupted power supply to the DP system, with particular reference to power shortages, failures and system redundancy.

**By the completion of the training session or period for the propulsion units the trainee should be able to:**

19. Describe the following types of propulsion system commonly installed in DP equipped vessels: main propellers and rudders, azimuth thrusters, Azipod thrusters and tunnel thrusters, Waterjet, Voith Schnieder, etc.
20. Describe the importance of monitoring the displayed values of setpoint and feedback data for thruster and propeller rpm, pitch and/or azimuth.
21. Describe the operational characteristics and common failure modes of the different types of propulsion systems as described in 19 above.

**By the completion of the training session or period for the position reference systems (PRS) the trainee should be able to:**

22. Describe the operation of hydroacoustic position reference (HPR) systems.
23. Describe the principles of position-fixing using underwater acoustic systems working in SSBL/USBL, LBL and SBL modes.
24. Describe the various types of hydroacoustic beacon: transponder, responder and pinger/Beacon.
25. Describe the layout of a typical Hydroacoustic system including operator station, transceiver, transducer pole and transducer.
26. List the operational advantages and limitations of acoustic systems as a position reference for DP.
27. Describe the principle and operation of the Artemis position reference system.
28. List the operational advantages and limitations of the Artemis position reference system.
29. List the different types of taut wire position reference system: vertical lightweight, vertical deep water, vertical moon pool, horizontal and horizontal gangway.
30. Describe the display of taut wire reference data in the DP system.
31. Describe the principle of position reference using the taut wire system.
32. List the advantages and limitations of the taut wire position reference systems.
33. Describe the principles of the Differential GNSS (DGNSS) system.
34. Outline the operation of a typical commercial DGNSS network where corrections are delivered by satellite communications.
35. List the sources of error and inaccuracy associated with the DGNSS system, describing the effects on the quality of positioning.
36. List the available quality data associated with the DGNSS system.
37. List the advantages and limitations of the DGNSS system when compared with other PRS.

38. Describe the principles used in relative DGNSS systems.
39. Describe the principles of position reference using laser-based systems.
40. Outline the method of setting up a laser system to provide best position information.
41. List the advantages and limitations associated with a laser-based PRS.
42. Describe the principles of position reference using FMCW Radar-based systems.
43. List the advantages and limitations associated with FMCW Radar-based PRS.
44. Describe the principle of Inertial Navigation (INS) and the methods of using INS to enhance existing PRS performance.
45. Discuss the relative accuracy and reliability of the aforementioned PRS, together with the methods used to apply weighting and pooling and voting when more than one PRS is used. Median rejection of PRS when three or more are used and the importance of monitoring the position reference page.
46. Describe other PRS that may be used in conjunction with a DP system.

**By the completion of the training session or period for the heading and motion reference systems the trainee should be able to:**

47. Describe the function of gyro compasses and their redundancy within a DP system.
48. Describe how to obtain pitch, roll and heave information for input into a DP system.
49. Describe the reason for inputting pitch, roll and heave into a DP system.

**By the completion of the training session or period for the environmental reference systems the trainee should be able to:**

50. Describe the provision of wind sensors within the DP system.
51. Describe the wind feed-forward facility and its importance within the DP system.
52. Recognise the limitations of wind sensor inputs. Explain the reasons for and the consequences of deselecting wind sensor inputs.
53. Describe the method by which the DP system determines the value for DP current or Sea Force (the residual error resulting from unmeasured errors & unmeasured forces acting on the vessel).
54. List the reasons for discrepancy between the displayed value of DP current (or Sea Force) on the DP system and the true current or tidal stream value.

**By the completion of the training session or period for the external force reference systems the trainee should be able to:**

55. Describe the use of external force reference systems such as hawser tension, plough cable tension and pipe tension monitoring.

**By the completion of the training session or period for the DP operations the trainee should be able to:**

56. Describe the procedures to be followed when approaching a worksite and transferring from conventional navigation to DP control.
57. Discuss the need for completing pre-DP and other checklists prior to and during DP operations.
58. Explain the need for keeping logbook records of all DP operations, failures and incidents.
59. Explain the need for keeping records of operation, maintenance and repairs of DP and ancillary equipment.
60. Describe the need for effective communications during the conduct of DP operations.
61. Outline the procedures to be followed by the DPO when taking over the control of the vessel's positioning and manoeuvring.
62. Describe the structure of alarm / warning and information messages provided on the DP system displays and on the DP printer.
63. Recognise the alarms/warnings associated with loss of redundancy after worst case failure and the possible loss of heading or position if another failure occurs after a worst case failure (part loss of some thrusters and power) and catastrophic failure (loss of heading and/or position control). ASOG, TAM and CAM.
64. Outline the navigational projections, spheroids and datums that may be used in operations involving Dynamic Positioning.
65. Explain the use of worksite diagrams using Universal Transverse Mercator (UTM) coordinates.

66. Explain the need for planning DP operations, including emergency and contingency situations ASOG, TAM and CAM.

67. List the various following providers of documents containing statutory requirements and guidance relating to DP operations, including:

- IMO (including IMO MSC/Circ. 645 of 1994 Guidelines for Vessels with Dynamic Positioning Systems)
- Classification society DP rules (example from classification society which is member of IACS)
- International Marine Contractors Association (IMCA)
- Marine Technology Society (MTS)

68. Explain the purpose of documentation associated with DP operations, such as DP operations manuals, Failure Modes and Effects Analysis (FMEA) and capability plots. ASOG, TAM and CAM.

69. Describe the IMO (DP) equipment classes and their application, with reference to the IMO *Guidelines for Vessels with DP Systems*.

70. Understand that classification societies use either numbers (e.g. ABS DPS-2) or letters {e.g. Lloyd's Register DP (AA) to denote the DP Class allocated to the vessel.

71. Describe in outline the DP operations conducted by the following vessel types:

- Diving and underwater support vessels
- Drilling ships and semi-submersibles
- Cable lay and repair vessels
- Pipelay vessels
- Rock dumping and dredging vessels
- Shuttle tanker and FPSO/FSO operations
- Flotel (accommodation) vessels
- Crane barges and construction vessels
- Anchor-handling and platform supply vessels
- Cruise ships and luxury yachts

72. State and describe the hazards associated with DP operations conducted in areas of shallow water and/or strong tidal conditions.

73. Describe the hazards associated with DP operations in very deep water.

**By the completion of the training session or period for the practical operation of a DP system the trainee should be able to:**

74. Demonstrate the use of the joystick to manoeuvre the vessel and bring the vessel to a stop in a seamanlike manner.

75. Demonstrate the correct procedure for setting up the DP system in both manual and automatic modes.

76. Demonstrate position and heading change manoeuvres, using both automatic and manual DP facilities.

77. Demonstrate the use of commonly provided functions on the DP control panel. As a minimum, including Gain, Fixed Azimuth mode and Thruster bias.

78. Demonstrate the use of common modes found on a DP system, as a minimum Track Follow, Minimum Power and ROV Follow.

### **1.1.7. ONLINE ASSESSMENT**

In order to be awarded a certificate of completion for the Induction Course the trainee must pass an online assessment at the training centre. The exam is composed of multiple choice questions and shall be completed in 1 hour 15 minutes. The online assessment will consist of 40 questions and shall be completed in one hour with a pass mark of 70%.

Students who fail at the first attempt are allowed to have another two attempts within six months of the first attempt; however, the second attempt must be undertaken within 96 hours of the first attempt. Failing these three initial attempts, the student is required to repeat the Induction Course and undertake the assessment again.

On successful completion of the Induction Course and online assessment, the trainee Dynamic Positioning Operator will be issued with a Nautical Institute Dynamic Positioning Operator's logbook in which his/her courses, DP sea time, task completion and Statement of Suitability as a DPO are recorded.

### **1.1.8. BLENDED LEARNING – FOR INDUCTION COURSE ONLY**

Definitions:

- CBT: a computer course that completely replaces face-to-face training.
- Blended learning: a methodology that combines CBT with face-to-face and/or practical training.

CBT courses are not recommended for DP courses because the trainee DPO must learn skills that cannot be taught via computer only, including communication, delegation and emergency response. Trainee DP Operators learn from each other during a face-to-face course as they participate in discussions and debrief after exercises.

Blended learning can be accepted as a delivery method for the DP Induction Course only, not the Simulator Course. CBT may be used to deliver the theoretical portion of the Induction Course after which a minimum of two and a half days will be required in a traditional class. At least two full days should be used for exercises, not theory, and a half day should be used to administer the external online assessment.

The course aims and objectives must comply with those in 5 and 6 above and shall be assessed by the NI on a case by case basis.

During the CBT portion of the course, computer assessments for each unit of material covered will be administered to verify that the trainee understands that material. The pass mark will be 70% for these interim assessments. Once the CBT is complete, the training centre shall administer a further assessment to ensure that the trainee is ready for the practical portion of the course and is at a level of understanding aligned with other trainees in the class.

One instructor should be allocated to support each student and support should be given seven days a week and cover all parts of the world.

## **1.2. SIMULATOR COURSE (PHASE C)**

The DP Simulator Course has a three part assessment process. Two parts of the process are standard assessments that are delivered across all training centres. These include the DP Set-up Practical Assessment and an online multiple choice exam. The third part of the assessment process is the feedback given to students throughout the course, most often based on their performance on simulator exercises. This is accomplished through a formative assessment process that will vary from centre to centre.

Practical assessments are to be undertaken as the course progresses.

### **Assessment**

Each candidate is required to demonstrate their competence to perform the tasks listed in the DP Set-up Practical Assessment Table.

The Control Sheet establishes the conditions under which the practical assessment occurs and the criteria against which the student's performance will be measured.

- The simulator Assessment Form for the practical assessment is to be used by the instructor/assessor when conducting assessments of the practical skills demonstration on the simulator.
- The instructor/assessor will observe how the candidate demonstrates the skills listed in the NI's DP Set-up Practical Assessment Table and determine if the candidate passes or fails.

### **Re-Test Policy**

*The DP Set-up Practical Assessment may not be retaken; it must be passed on the first attempt. If test is failed, student must repeat the Simulator Course. (At 20<sup>th</sup> Jan 2016, - Not adopted – under review).*

### **Completion**

On successful completion of the Simulator Course, the DP Set-up Practical Assessment and the online assessment, the student will receive a course completion certificate and may return to sea to accumulate the sea time required for Phase D of the training program.

#### **1.2.1. NUMBER OF HOURS**

A minimum of 28 hours teaching time is required for this course; if additional time is required to deal with paperwork or administer exams this time shall be added to the 28 hours. It is suggested that a split of 30% of the course time is spent on theory and 70% on practical exercises (including the time spent on briefing and debriefing).

#### **1.2.2. RATIO OF STUDENTS/INSTRUCTORS/EQUIPMENT**

The number of students attending the Simulator Course must be regulated so that each student obtains sufficient hands-on experience of operating the system when having to react to various failure scenarios.

In order to achieve this, the NI allows a maximum ratio of four students taught by one instructor per one Class B or A Simulator.

By exception, and where justified, a ratio of five or six students may be considered at the discretion of the NI's Accreditation Team, based on the number of simulators in place, rotation of students and the use of the training methodology in place.

When two simulator systems are available in a training centre, "best practice" is to keep each trainee on the same simulator throughout the Simulator Course.

#### **1.2.3. DELIVERY METHOD**

The training will be predominantly practical/operational in nature. Exercises and case studies will be carried out in a facility that meets the provisions set out in the document NI DP Simulator specification (Annex 7).

In addition to exercise briefing/debriefing, students will be given an opportunity to give feedback on their training needs during classroom tuition.

This course is intended for those who have completed the Induction Course and a minimum of 60 DP sea time days. These students should already have a good grounding in the practice and principles of dynamic positioning through their experiences in class and at sea.

The DP Simulator Course is intended to build on that experience and to provide realistic DP-based scenario work. These scenarios should provide the opportunity to practise all aspects of the planning and conduct of typical DP operations, including the handling of emergencies. Particular emphasis should be placed upon teamwork within the role-play scenarios.

A typical installation will consist of a redundant DP system interfaced with a simulator system co-ordinated by the instructor's input. Other facilities will include a realistic communications suite, suitable chartroom facilities and support documentation.

DP scenarios must closely match the situation on board a vessel. Communications form an important part of any DP situation; so they must be adequately simulated in any training facility, with several different means of communication between the instructor station and the DPO/trainee facility. Communications to be simulated include:

- VHF on emergency and working channels. A useful addition is a listing of the various channels monitored by the various installations and vessels taking part in the simulations.
- Talk-back to areas such as ROV control, dive control.
- Telephone to areas such as the MCR.

- DP status alarms (red, amber, blue/ white and green traffic lights).
- DP status board. This facility may form part of a planned crisis; the instructor may mark up the status board incorrectly at the beginning of a scenario to discover if the trainees are completing their checklists meticulously.

The training establishment must provide materials to support the hardware simulator facility. This will mainly consist of relevant documentation which will include:

- Plans and drawings showing the oilfield or operating area used in the simulations.
- Drawings of the various installations within the operating areas, together with any specifications or other necessary details.
- Drawings and data sheets relating to the vessel or vessels under simulation; these drawings to include DP capability plots.
- Operational instructions, checklists and standing orders associated with the vessel or vessels.
- A set of scenario information sheets. Each scenario should be designed to provide at least one specific, planned crisis or problem for the trainees to react to. Other problem areas should be kept in hand for use in the event of the trainees coping with the primary planned crisis in short order.

Training centres must ensure all sources of time keeping are aligned and synchronised. Especially for the recording of time during DP Simulator based exercises.

#### **1.2.4. COURSE AIMS**

On completion of the Simulator Course the student should be able to:

- Carry out operational planning, risk assessment and hazard identification tasks
- Set up the DP system for a particular task
- Operate the communications
- Analyse the trends
- Discuss systems failures
- Decide on courses of action because of systems failures
- React to alarms and printer readout
- Initiate DP Alert status alarms
- React to all events occurring
- Operate the desk under normal and pressured conditions
- Practice effective teamwork
- Apply the lessons learned to date.
- ASOGs

#### **1.2.5. COURSE OBJECTIVES**

##### **1. OPERATION OF A DP SYSTEM**

1.1 Demonstrate ability through participation in exercises to set up, operate and carry out manoeuvres using the DP system under the following control modes:

Manual mode	Joystick control of surge, sway and yaw
Mixed manual/automatic mode	Automatic control of yaw with joystick control of surge and sway Automatic control of surge and sway with joystick control of yaw
Automatic mode	Automatic control of surge, sway and yaw

1.2 Demonstrate ability through group exercises to set up, operate and carry out manoeuvres using the DP system under the following control modes:

Follow-target mode	ROV follow and working other DP vessels
Track follow mode	
Minimum power heading mode	

1.3 Demonstrate within the DP Simulator the operation of position reference systems, sensors and peripheral equipment associated with the DP system.

## **2. DP OPERATION**

2.1 Interpret vessel plans and specifications.

2.1.1 Interpret information found on paper or electronic field charts relevant to the planning and conduct of DP operations.

2.2 Using vessel and other data such as capability plots (paper or electronic), footprint plots to assess the capability of the vessel to complete successfully any proposed operation without a loss of position after worst case failure.

2.2.1 Review power management systems considering the following:

- Open and closed tie breaker
- Number of generators online
- Available Power/Spinning reserve
- Preferential tripping- /-Load sharing
- Redundancy
- Concept of Auto blackout recovery
- How power management systems prevent blackouts
- Power management with the DP program

2.2.2 Review FMEA and Annual DP Trials:

- Define the two main sections of an FMEA
- Explain reason why Class 2 and 3 vessel need FMEA
- Identify Worst Case Failure
- Explain the reason for using the FMEA to develop Activity Specific Operation Guidelines (ASOG)
- Identify and understand the reason for annual DP trials

2.3 Carry out a risk assessment exercise on proposed operations and determine the level of redundancy appropriate.

- Understand a DP alert table or ASOG, what will trigger a change of status and the action required
- Understand a CAMO and TAM table and decide on which mode to operate under, based on a risk assessment of proposed operations

2.4 Make appropriate contingency plans to cover foreseeable system failure or operational requirement. Contingency planning to include:

- Escape routes
- Position reference failures
- Sensors
- Weather
- Power
- Propulsion
- Worst case failure.

2.5 Describe appropriate procedures to be followed when approaching a work site and transferring from manual/ joystick to DP control, taking into account:

- Speed
- Distance
- Drift test
- Location of surface and sub-sea structures
- Drift-on/drift-off
- Testing manual control
- Independent joystick control
- Current/tide changes
- Weather forecasts
- Worst case failure testing
- Testing of the DP alert status system.

2.6 Demonstrate effective completion of setup/location and change of watch checklists and task specific checklists as required.

2.7 Demonstrate the effectiveness of closed-loop communications needed during DP operations and task specific communications as per IMCA 103, for the exercise being conducted.

2.8 Conduct vessel positioning manoeuvres and station keeping functions following operational plan and procedures.

2.9 Organise DP watchkeeping procedures:

- Manning of DP console
- Maintaining lookout
- Internal and external communications
- Observing recognised safe working practices.

2.10 Conduct appropriate watch handover procedures, to include but not limited to:

- Status board
- Weather forecasts
- Vessel status
- DP status
- Field operations
- Vessel operations
- Completing appropriate checklists.

2.11 Maintain the appropriate logbooks and records pertaining to DP operations including IMCA incident report form, fault logs, position reference systems logs.

2.12 Evaluate the various information, warning and alarm messages communicated to the operator.

2.13 Relate the content of the messages in 2.12 above to the actions necessary in relation to the DP operation.

2.14 Understand Activity Specific Operational Guidelines.

### **3. EMERGENCY PROCEDURES**

3.1 Recognise the conditions (as per main headings in failure mode check list – Annex 8 – thrusters, sensors, position references, power, environment and miscellaneous) that will degrade operational or emergency status.

3.2 Recognise the warnings and alarms associated with conditions as per 3.1.

3.3 Evaluate the various factors to be taken into account subsequent to any system failure, determine and carry out appropriate corrective actions, including:

- Changing DP status
- When to terminate work
- Monitoring stability of position and heading
- Communication.

### **1.2.6. ONLINE ASSESSMENT**

In order to be awarded a certificate of completion for the Simulator Course the trainee must pass an online assessment at the training centre. The exam is composed of multiple choice questions and shall be completed in 1 hour. The online assessment will consist of 30 questions and shall be completed in one hour with a pass mark of 70%.

Students who fail at the first attempt are allowed to have another two attempts within six months of the first attempt; however, the second attempt must be undertaken within 96 hours of the first attempt. Failing these three initial attempts, the student is required to repeat the Simulator Course and undertake the assessment again.

### **1.2.7. FAILURE MODE CHECKLIST – As per Annex 8**

In using the failure mode checklist, it is a requirement that training centres apply at least one item from each section (Thrusters, Sensors, Position Reference, Power, Environment and Miscellaneous) during the Simulator Course and its exercises. Other failures are subject to the training centre's choice, either to apply them through the exercises or discuss them during the debriefing. In the case of debriefing, a note should be made in the failure mode table to specify that has been done.

Items recommended:

- Item 1, 2, 3, 5 and 6
- Item 20
- Item 25
- Item 40, 41, 43 and 47
- Item 50

## **2. PHASES B AND D - DP SEA TIME AND TASKS**

### **2.1. DEFINITION OF DP SEA TIME DAY**

One DP sea time day can be counted if the trainee DPO is involved with active or passive DP training for a minimum of two hours per day claimed. A maximum of 25% DP sea time days can be passive time but 75% of the total DP sea time claimed must be done in active mode.

**Active – with propulsion** under the guidance of a NI certified DPO

- Using the DP system to control the ship
- Setting up on DP
- Completing task sections combined with DP operations
- Time on watch as part of a member of the DP watch or monitoring DP watch (Master)
- FMEA trials
- Annual trials
- Class trials
- Charterer trials
- Field arrival trials
- DP proving trials
- Emergency ship handling training using manual controls using ONLY the thrusters available after worst case failure

**Passive – without propulsion** under the guidance of a NI-certified DPO

- Training on in-built ship-based DP Simulator on a vessel with simulator mode in the DP system or a standalone DP Simulator.
- Task sections training and assessments by a NI-certified DPO and countersigned by the Master.

#### **Notes about the DP sea time definition**

- Not all DP training has to be completed monitoring the DP system with the vessel in a high-risk position.
- Passive DP sea time allows DPOs to gain DP training and familiarisation with a vessel without exposing the vessel to risk.
- Passive DP sea time can only be claimed between the Induction and Simulator Courses.
- Most of the tasks in the task section of the logbook can be completed using passive DP sea time. The task section of the NI DP logbook clearly states what training can be conducted in passive mode.
- The NI DP sea time days allow for many different DP vessel types and operations and specify the minimum number of hours that will count as a day. If the ship and trainee DPO is engaged in DP for more than two hours in the day, only one day may still be claimed.
- DP sea time cannot be counted in any circumstances when using the DP auto pilot mode.
- It is the duty of the senior DPO (NI certified DPO on board) to verify and sign off DP tasks.
- DP sea time must be verified and signed off by the Master.
- The definition of DP sea time and the active and passive concept is not valid for the Shuttle Tanker training scheme.
- Position Mooring or THRUSTER-ASSISTED MOORING (TAM): The time on board a vessel with the classification of POSITION MOORING or THRUSTER-ASSISTED MOORING (TAM) and DP Class notation can be counted as DP sea time for initial DP training. The NI requires the candidate to present evidence that the anchor was not deployed for the DP sea time claimed during DP operations when applying for a DP certificate.

There is one page for each embarkation for recording DP sea time in the logbook. The DP sea time dates shall be recorded individually each day according to the DP operation of the vessel. This is to be signed off by the certificated DPO/Master.

Practical training with manual ship-handling is not counted except as stated above. Every trainee DPO must be able to manually control a vessel, but manual ship handling training shall be conducted in addition to DP training.

The allowance of up to 25% of qualifying time in passive mode may only be completed during Phase B.

For further information regarding the definition of a DP sea time day can be found [here](#).

#### **NOTE**

**Certified Senior DPO:** is the DP Operator holding a valid NI DP Certificate with delegated responsibility from the Master as the senior person in charge of the DP watch.

#### **2.2. DP SEA TIME BETWEEN THE INDUCTION AND SIMULATOR COURSES, TASK SECTION**

A minimum of 60 DP sea time days between these courses is required for completion of the task sections of the logbook. Candidates are only eligible for admission on to the Simulator Course provided that the Induction Course and task section is in date. Training centres are not permitted to accept students onto the Simulator Course if the task sections are not fully completed.

Any time gained in excess of the 60 DP sea time days between the Induction and the Simulator Course will normally be counted towards the total requirement of 120 DP sea time days. However, the candidate must complete at least 30 DP sea time days after the Simulator Course and obtain the Statement of Suitability signed by the Master of the last vessel the candidate has served on before submitting his/her documents to the NI.

The **DP sea time** should be carefully and accurately entered in this section. It is important that the DP Class and the DP system are entered. The dates of joining and leaving the vessel may be confirmed through the discharge

book, but not the DP sea time, which shall be confirmed by the company to verify the DP sea time logged.

Any DP sea time gained while the logbook is at the NI for verification will not be counted towards gaining certification or applying for an upgrade. This is because the DP sea time cannot be verified or validated with backdated signatures and stamps.

The task section can only be signed off by a certificated DPO on board the vessel. Those responsible for signing this section of the logbook should adhere to high professional standards and appropriately rigorous assessments of trainees before signing that a training task has been completed.

The tasks must not be block signed; each task must be signed and dated individually.

The Master is required to countersign each section once all tasks in that section have been completed and signed by a certified DPO on board. If the Master is a certified DPO on board, then a note shall be made in the logbook and the Master's DP Certificate number must be annotated for verification. The Master can then sign both sections.

*If the trainee DPO is the Master, he/she is permitted to sign off the task sections once the certified DPO on board has signed off the tasks for that section individually.*

### **2.3. DP SEA TIME REDUCTION**

The period of supervised DP sea time days after the Simulator Course may be reduced by a maximum of 30 days by the satisfactory completion of an intensive DP Simulator Course.

This course can be done straight after the Simulator Course, but trainee DPOs are required to do a minimum of 30 DP sea time days on board a classed DP vessel and have the Statement of Suitability signed by Master after the course. A company confirmation letter is required for verification of that DP sea time.

As with the other components of the scheme, all DP time or courses leading to reduction of DP time must have been completed within the previous four years.

The Sea Time Reduction training cannot be used for upgrading a certificate from Limited to Unlimited.

#### **SEA TIME REDUCTION COURSE (STR)**

##### **2.3.1. NUMBER OF HOURS**

A minimum of 37.5 hours of instruction time is required for this course.

##### **2.3.2. RATIO OF STUDENTS/INSTRUCTORS/EQUIPMENT**

The number of students attending a STR Course must be regulated such that each student obtains the maximum amount of 'hands-on' experience of operating the system to ensure the validity of awarding six DP sea time days for each day spent in the simulator. In order to achieve this, the NI allows a maximum of three students per class being taught by one instructor in a Class A Simulator.

##### **2.3.3. DELIVERY METHOD**

The training will be predominantly practical/operational in nature.

In addition to the opportunities that arise during the exercise briefing and debriefing sessions, provisions will be made during classroom tuition to facilitate student feedback of training needs.

Exercise scenarios and case studies will be carried out on a facility that effectively replicates the working environment the trainee will meet on board. Simulator equipment for the DP Sea Time Reduction training should incorporate facilities that:

- Create a real time operating environment that includes navigation control, manoeuvring and communications instruments replicating that found on a typical dynamically controlled vessel, that will allow trainees to carry out DP watchkeeping and station keeping tasks

- Provide a realistic visual scenario for day and night, including variable visibility, with a minimum horizontal and vertical field of view in viewing sectors appropriate to the DP watchkeeping and station keeping tasks
- Realistically simulate own ship dynamics in open water conditions, including the effects of weather, tidal stream, shallow water and interaction with other vessels
- Realistically simulate faults in the dynamic positioning control system, power generation and distribution systems, propulsion systems, position reference equipment, other sensor equipment and the machine/human interface.

#### **2.3.4. COURSE AIMS**

The Sea Time Reduction Course should be an opportunity for the trainee to spend extended and intense periods of time on DP station keeping and must challenge the trainee to enhance, consolidate and demonstrate their:

- Knowledge of the DP system and additional equipment and instruments,
- Situational awareness,
- Communication and teamwork skills,
- Ability to analyse trends and pre-empt problems before they arise,
- Ability to evaluate and respond to alarms, faults and emergencies with calm, reason and confidence, and
- Ability to complete such administrative and safety-related procedures as completing checklists, filling in logs and performing thorough watch handovers.

The range of exercises a centre develops to achieve these aims should be appropriate to the intended target group. The following are examples of the typical operational areas that should be considered:

- Saturation and air dive support
- Sub-sea construction and heavy lift
- ROV operations
- OSV operations
- Cable and pipe laying operations
- Drilling operations
- Offshore loading operations
- Shuttle tanker.

#### **2.3.5. COURSE OBJECTIVES**

##### **1. OPERATION OF A DP SYSTEM**

1.1 Demonstrate the ability to set up and operate the DP system under the various control modes,

and to carry out manual, mixed manual and automatic and fully automatic manoeuvres.

1.2 Demonstrate within the DP Simulator the operation of position reference systems, sensors and peripheral equipment associated with the DP system.

##### **2. DP OPERATION**

2.1 Interpret vessel plans and specifications, capability diagrams and other data relevant to the planning and conduct of DP operations.

2.2 Using vessel and other data, assess the capability of the vessel to successfully complete any proposed operation.

2.3 Carry out a risk assessment exercise on proposed operations and determine the level of redundancy appropriate.

2.4 Make appropriate contingency plans to cover any foreseeable system failure or operational requirement. Contingency planning to include appropriate escape routes for the vessel.

2.5 Demonstrate compliance with appropriate procedures to be followed when approaching any work site and transferring from conventional vessel control to DP control.

2.6 Demonstrate effective completion of pre-DP and other checklists.

2.7 Demonstrate the effective communications necessary during DP operations and the testing procedures.

2.8 Conduct vessel positioning manoeuvres and station keeping functions following operational plan and procedures.

- 2.9 Organise DP watchkeeping procedures observing recognised safe working practices.
- 2.10 Conduct appropriate watch handover procedures, completing appropriate checklists.
- 2.11 Maintain the appropriate logbooks and records pertaining to DP operations.
- 2.12 Evaluate the various information, warning and alarm messages communicated to the operator.
- 2.13 Relate the content of the messages in 2.12 above to the actions necessary in relation to the DP operation.

### **3. EMERGENCY PROCEDURES**

- 3.1 Recognise the conditions that will cause degraded operational status or emergency status.
- 3.2 Recognise the warnings and alarms associated with worst case failure.
- 3.3 Evaluate the various factors to be taken into account subsequent to any system failure and determine appropriate actions.
- 3.4 Carry out procedures to stabilise the vessel position and heading subsequent to a variety of system failures and take appropriate decisions and actions relating to the continuance or abandonment of the operation. This to include the following:
  - a. Thruster fail to max pitch
  - b. Setpoint/feedback offset
  - c. Loss of all position reference system, entering move into DP system when in DR mode
  - d. Worst case failure and action to be taken
  - e. Movement of position reference systems.

In 2.2 above, one exercise should be in the form of a table top analysis. An FMEA should be used along with other appropriate documentation to evaluate a vessels capability to carry out a given operation.

#### **2.3.6. FAILURE MODE CHECKLIST – as per Annex 8**

### **2.4. CALCULATION OF SEA TIME TO ISSUE AN UNLIMITED CERTIFICATE, LIMITED CERTIFICATE OR UNCLASSED RESTRICTED CERTIFICATE**

**UNLIMITED CERTIFICATE** will be gained if the trainee DPO has:

- 120 DP sea time days entirely done on board a DP2/3 classed vessel, or
- 120 DP sea time days of which a minimum of 60 DP sea time days should be on board a DP2/3 vessel which must include the final 30 DP sea time days before the Phase E sign-off.

**LIMITED CERTIFICATE** will be gained if the trainee DPO has:

- 120 DP sea time days on board a DP1/DP2/DP3 classed vessel.
- Less than 60 DP sea time days completed on board a DP2/3 vessel.

**UNCLASSED DP VESSEL RESTRICTED CERTIFICATE** will be gained if the trainee has:

- 120 DP sea time days on board a DP Unclassed vessel, or
- 120 DP sea time days on board a DP Class 0 or
- 120 DP sea time days with a mix of experience on board classed and Unclassed DP vessels where the conditions identified above have not been met.

#### **NOTE**

**DP certified classed vessel** means the vessel must have a DP Class 1, 2 or 3 notation with a certificate issued by a classification society and not simply be fitted with DP equipment or capability.

**Unclassed vessel:** mean those with a DP capability but not classified or certified by a classification society. The NI also considers DP Class 0 vessels under this definition.

### **2.5. UPGRADING FROM LIMITED TO UNLIMITED CERTIFICATE**

To upgrade from a LIMITED to an UNLIMITED Certificate, the DPO will need to obtain a minimum of 60 DP sea time days on board a DP2/3 classed vessel. This sea time must be recorded in the NI DP logbook.

Any DP time on board DP Class 2 or 3 vessels previously used to obtain a Limited Certificate cannot be used

towards the time required for the issuance of an Unlimited Certificate.

When applying to upgrade to an Unlimited Certificate, the NI will require the logbook, a new Statement of Suitability upgrade form signed by the Master of the last Class 2 or 3 vessel, the original Limited Certificate and the confirmation letter from the shipping company for the new sea time experience to be sent in with the application.

The online application for an upgrade should be carried out before sending in the documents listed above to the NI. The applicant shall use the same candidate customer account number that was issued prior to his/her first DP Certificate. Once all qualification requirements have been confirmed, an Unlimited Certificate will be issued by the NI.

## **2.6. UPGRADING FROM UNCLASSED TO LIMITED/UNLIMITED**

Information on how to convert from a restricted to Unclassed vessel DP Certificate to a Limited/Unlimited DP Certificate can be found in Appendix E.



## **APPENDIX C**

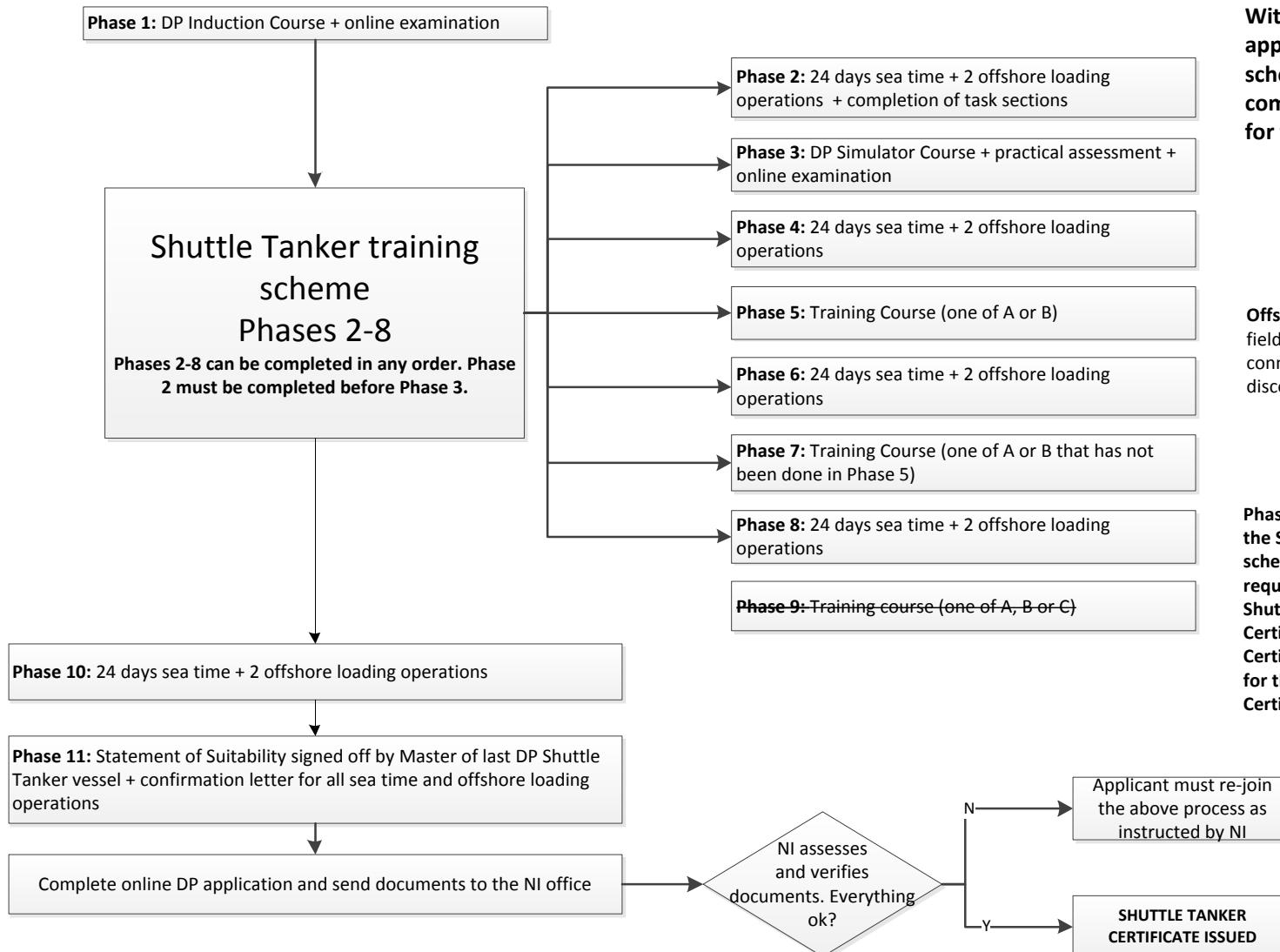
# **SHUTTLE TANKER TRAINING SCHEME**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## APPENDIX C - SHUTTLE TANKER TRAINING SCHEME

### SHUTTLE TANKER DP CERTIFICATE FLOWCHART

The components of the scheme are set out in the following flowchart. To obtain a Shuttle Tanker DP Operator Certificate the route outlined below must be followed. Further information on requirements can be found on the DP Help Page <http://www.nialexisplatform.org/dp-help-page/shuttle-tanker/requirements/>.



With effect from 1<sup>st</sup> January 2017, applicants on the Shuttle Tanker training scheme will no longer be required to complete Course C previously required for this qualification.

**Offshore loading operations:**  
field arrival, set-up approach, connection, loading, disconnection and departure

Phase 9 is no longer required for the Shuttle Tanker training scheme. Course C will now only be required for conversion from a Shuttle Tanker Restricted Certificate to an Offshore Certificate if it was not completed for the original Shuttle Tanker Certificate.

**Phase 1:** DP Induction Course + online examination. By completing this course and passing the examination, the trainee will receive a burgundy Shuttle Tanker logbook.

**Phase 2 - Phase 8:**

The following phases can be carried out in any order with the exception that Phase 2 must be completed before Phase 3:

- **Phase 2:** Minimum of 24 sea time days as practical time on board a shuttle tanker with participation in at least two complete offshore loading operations (field arrival, set-up approach, connection, loading, disconnection and departure). Both criteria must be achieved, i.e. if the person completes only one offshore loading operation within 24 days, it will be necessary for the trainee to undertake more sea time until he/she completes the second offshore loading operation as required.

**During this period, the task section entries must be completed to ensure that a good knowledge of DP operations is achieved prior to attending the DP Simulator Course.**

The attention of operators and Masters is drawn to the task sections expectation and it is recommended that trainee DPOs have few other duties during this period to ensure that they have the opportunity to meet these guidelines.

- **Phase 3:** DP Simulator Course to help consolidate general DP theory and understanding as well as coping with errors, faults and failures + practical assessment + online examination.
- **Phase 4:** Minimum of 24 sea time days as practical time on board a shuttle tanker with participation in at least two complete offshore loading operations, to include field arrival, set-up approach, connection, loading, disconnection and departure. Both criteria to be achieved.
- **Phase 5:** Training course (one of A or B)
- **Phase 6:** Minimum of 24 sea time days as practical time on board a shuttle tanker with participation in at least two complete offshore loading operations to include field arrival, set-up approach, connection, loading, disconnection and departure. Both criteria to be achieved.
- **Phase 7:** Training course (one of A or B not already completed)
- **Phase 8:** Minimum of 24 sea time days as practical time on board a shuttle tanker with participation in at least two complete offshore loading operations to include field arrival, set-up approach, connection, loading, disconnection and departure. Both criteria to be achieved.
- **Phase 9: Training course C**  
*Phase 9 is no longer required for the Shuttle Tanker training scheme. Course C will now only be required for conversion from a Shuttle Tanker Restricted Certificate to an Offshore Certificate if it was not completed for the original Shuttle Tanker Certificate.*

**Phase 10:** Minimum of 24 sea time days as practical time on board a shuttle tanker with participation in at least two complete offshore loading operations to include field arrival, set-up approach, connection, loading, disconnection and departure. Both criteria to be achieved.

**Phase 11:** Statement of Suitability signed off by the Master of the last shuttle tanker vessel.

The shuttle tanker vessel Master and the vessel operating company are both required to confirm that the trainee's practical experience and understanding is satisfactory. This provides the assurance that the trainee's logbook entries are legitimate and that they have achieved at a recognised level of competence.

This gives an aggregate minimum of 120 days on board and a minimum of 10 loading operations as the pre-certification practical experience. Each practical experience stage must comply with 24 days on board and two complete loading operations – whichever limit is reached last. There is no option for any sea time reduction within this programme i.e. the Sea Time Reduction and Offshore Loading Courses will not reduce the sea time required, but will be counted for training purposes only.

**NOTE about shuttle tanker DP operations:** Offshore loading operations not conducted with the DP system in use shall not be counted as Offshore Loading Operations within the training and certification scheme.

**Definition of shuttle tanker days:** Shuttle tanker sea service days are not the same as those in the Offshore scheme. Shuttle tanker sea time days are considered the days from embarking to disembarking the shuttle tanker. However, the times recorded for the offshore loading operations should be done while the vessel is operating in DP mode.

Submission of an application to the NI for the Shuttle Tanker DPO Certificate shall be made upon satisfactory assessment of performance. Appropriate confirmations and details from the Master and company that the training regime has been complied with are required with the application. Logbook training entries are to specify the location and type of installations experienced.

## SHUTTLE TANKER COURSES

These courses are available in accredited training centres or from manufacturers recognised by the NI.

### 1. COURSE A and B

Courses A and B can be taken in any order:

#### 1.1. COURSE A:

Completion of appropriate position reference systems training course (Artemis, DARPS, HPR, and others such as Radius or Fanbeam). To be formal training delivered by recognised reference system's manufacturers of equipment or their approved agent.

**Capacity:** 10 students

**Number of hours:** from one to two day course with minimum of six hours per day.

At the end of the course, the trainee should obtain a certificate of attendance.

The NI only recognises these courses and does not accredit them. Courses should be aligned with existing practices in regards to course duration as below:

Artemis operator course: one day

HRP/HIPAP operator course: two days

DGPS/DARPS operator course: two days

Parker PMS System Operator course: one day

#### 1.2. COURSE B:

The shuttle tanker operation simulator training course relates to the offshore loading Phase 2 type course.

To concentrate on shuttle tanker specific behaviours and include a range of offshore loading installation types.

**Capacity:** Three students maximum

**Duration:** Five days x six hours per day, totalling 30 hours

**Simulator:** This course is done on Class A Simulator only.

**Purpose:** The focus of the exercises should be on the practical handling of shuttle tankers in the vicinity of offshore installations. This should include approach to the operational zones, safe interaction with the offshore terminal facilities, including the effects of mooring systems, hose connections, emergency shutdowns, interaction with tanker assist vessels and field communications. All functions of propulsion, power generation and position reference systems should be included in the discussions and exercises, as well as effects and instances of equipment and system errors/failures. Students will also acquire knowledge of offtake tanker operational procedures.

A separate basic ship handling course should have been completed prior to attending this course, as the revision section is limited to a refresher on basic shiphandling techniques.

Such a shiphandling course should cover:

- Effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances
- Effects of wind and current on ship handling; application of rate of turn (ROT) techniques
- Manoeuvring in shallow waters, including under-keel clearance caused by squat, rolling and pitching
- Interaction between ships and between own ship and nearby banks (bank effect)
- Berthing and unberthing under various wind, tide and sea-current conditions with and without tugs
- Ship and tug interaction, various types of tugs
- Use of propulsion and manoeuvring systems
- Where possible, use of tunnel and azimuth thrusters

A suitable course format is currently available as Offshore Loading Phase 1 at some training establishments.

### **Objective**

The reasons for the majority of incidents related to vessel handling operations can be traced to human error or lack of professional problem mitigation. The main objective of the courses is for Masters and DPOs to achieve optimal understanding and skills in DP mode, DP manual mode and in traditional manual modes, where appropriate. This will further improve the safety of the tanker's manoeuvring and loading operations.

Vessel handling exercises should be carried out on simulators. Approaches to offshore terminal should be carried out primarily by using DP systems, but a manual mode approach should be included for comparison. Simulations should also include reconstruction of known DP incidents involving offtake tankers. The complexity and value of these exercises will be enhanced by appropriate previous experience of the person in charge of the simulator.

### **Course content**

The following sections outline content of a typical training course designed to provide the competence required to achieve a satisfactory understanding and skill level.

#### 1. Ship handling Refresher section:

- Repetition of rate of turn (ROT) techniques and other theoretical items from basic Ship handling course noted in Purpose (above).
- Practical exercise on simulator to confirm adequate understanding of MCRM principles and practices
- Further practical exercises on simulator if the instructor considers it necessary, based on responses from above two assessments

#### 2. Offshore Loading specific section:

- Gain knowledge of requirements and guidelines that apply to offtake tanker DPOs. Achieve increased skills in operating the DP system and the manual manoeuvring of vessels under normal and severe/marginal environmental conditions, with systems intact and with system errors, such as loss of position reference systems, thruster failure and sensor failures, etc.
- Gain a good understanding of the DP system's possibilities and limitations.
- Gain good understanding of field operator's offshore loading manuals for various fields.
- Gain good understanding of the correct use of position reference systems for DP.

3. General section:

- Review and updates in latest industry best practice including new legislation, new recommendations/guidance, new systems, new fields and terminal types.
- Revision of DP Systems and Operation, to include Tandem FPSO (active and passive); STL; OLS; and taut hawser options:
  - Interpret vessel specifications, field specifications and other data relevant to planning approach and offloading operations.
  - Using capability plots and environmental data to assess the capability of the vessel to complete the planned operation safely.
  - Ensure correct level of redundancy is available and that risks are assessed adequately.
  - Develop contingency plans and escape criteria/routes.
  - Demonstrate compliance with appropriate procedures for different stages of the operation.
  - Demonstrate use of the Approach Mode, controlling the vessel speed and movement.
- Relative and Absolute Position reference systems such as DARPS, Artemis, Radius, Radascan, Fanbeam, and HiPap:
  - Demonstrate correct set-up and use of such systems.
  - Demonstrate awareness of errors and failures – how they occur, develop and need to be handled.
- Discuss and learn from recent and important past incidents from industry sources.

Simulator exercises in support of sections 2, 3 and 4, should include appropriate Failure Modes selected from the NI checklist, and:

- Manoeuvring according to field procedures and DP best practice.
- Approach and departure with and without tanker assist vessels.
- Ship handling in changing wind speed and direction
- Ship handling in changing current speed and direction
- Ship handling with variable wind and current
- Tandem positioning – free weathervane; operator selected heading; spread moored operation and taut hawser operations
- Escape manoeuvring
- Engine, propeller and rudder errors/failure
- Thruster errors/failure
- DP errors
- PRS errors
- ESD 1 and 2 processes.

**Assessment**

A theoretical and practical test should be held at the end of each course and an assessment report handed to the participant with a copy sent to the employer.

**2. COURSE REQUIRED FOR CONVERSION FROM SHUTTLE TANKER RESTRICTED CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE TO THE OFFSHORE CERTIFICATE:**

**2.1. COURSE C:**

DP Operations Simulator Course covering all aspects of DP experience and scenarios (not shuttle tanker) to ensure a wide range of generic DP understanding. Content is similar to many current sea time remission courses - but no remission is given.

**Capacity:** Three students maximum

**Duration:** 37.5 hours

**Simulator:** This course is undertaken in a Class A Simulator and is similar to the Sea Time Reduction Course. For this course, shuttle tanker operations cannot be used for training.

**This course does not reduce sea time requirements or the need for the experience of offshore loading operations.**

**Course structure:**

The training will be predominantly practical and operational in nature.

Exercise scenarios and case studies will be carried out on a facility that effectively replicates the working environment the trainee will meet on board. The failure mode checklist should be applied during exercises.

Provision will be made for classroom tuition to assist student feedback of training needs in addition to exercise briefing/debriefing.

**Course content**

The focus of the exercises should be on DP station keeping and should address familiarity with the DP system and additional equipment and instruments, situational awareness, communications, emergency preparedness and response.

The range of exercises developed should be appropriate to the intended target group. Practical exercises shall not be undertaken during shuttle tanker operations.

In 2.2 below, one exercise should be in the form of a table top analysis. A FMEA should be used along with other appropriate documentation to evaluate a vessel's capability to carry out a given operation.

**CORE COMPETENCIES TO BE DEMONSTRATED DURING THE EXERCISES BY THE TRAINEE DPO:**

**1. OPERATION OF A DP SYSTEM**

1.1 Demonstrate the ability to set up and operate the DP system under the various control modes, and to carry out manual, mixed manual and automatic and fully automatic manoeuvres.

1.2 Demonstrate within the DP Simulator the operation of position reference systems, sensors and peripheral equipment associated with the DP system.

**2. DP OPERATION**

2.1 Interpret vessel plans and specifications, capability diagrams and other data relevant to the planning and conduct of DP operations.

2.2 Using vessel and other data, assess the capability of the vessel to complete successfully any proposed operation.

2.3 Carry out risk assessment exercise on proposed operations and determine the level of redundancy appropriate.

2.4 Make appropriate contingency plans to cover any foreseeable system failure or operational requirement. Contingency planning to include appropriate escape routes for the vessel.

2.5 Demonstrate compliance with appropriate procedures to be followed when approaching any work site and transferring from conventional vessel control to DP control.

2.6 Demonstrate effective completion of pre-DP and other checklists.

- 2.7 Demonstrate effective communications necessary during DP operations and the testing procedures.
- 2.8 Conduct vessel positioning manoeuvres and station keeping functions following operational plan and procedures.
- 2.9 Organise DP watchkeeping procedures observing recognised safe working practices.
- 2.10 Conduct appropriate watch handover procedures, completing appropriate checklists.
- 2.11 Maintain the appropriate logbooks and records pertaining to DP operations.
- 2.12 Evaluate the various information, warning and alarm messages communicated to the operator.
- 2.13 Relate the content of the messages in 2.12 above to the actions necessary in relation to the DP operation.

### **3. EMERGENCY PROCEDURES**

- 3.1 Recognise the conditions that will cause degraded operational status or emergency status
- 3.2 Recognise the warnings and alarms associated with catastrophic failure
- 3.3 Evaluate the various factors to be taken into account subsequent to any system failure and determine appropriate actions
- 3.4 Carry out procedures to stabilise the vessel position and heading subsequent to a variety of system failures and take appropriate decisions and actions relating to the continuance or abandonment of the operation.

This to include the following:

- Thruster fail to max pitch.
- Setpoint/feedback offset.
- Loss of all position reference system, entering move into DP system when in DR mode.
- Worst case failure and action to be taken.
- Movement of position reference systems.



## **APPENDIX D**

### **INFORMATION APPLICABLE FOR BOTH TRAINING SCHEMES**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **APPENDIX D - INFORMATION APPLICABLE FOR BOTH TRAINING SCHEMES**

### **1. STATEMENT OF SUITABILITY**

The attention of Masters is drawn to this statement: the *suitability of the officer to undertake full DP watchkeeping responsibility on board a DP vessel.*

This is the final assessment of the trainee DPO and Masters should carefully consider whether they are able to affirm the statements within this section before signing.

The Statement of Suitability should be completed at the end of final period of sea time prior to a certificate application being made.

Masters signing this should enter their own DP Certificate number if held. The signature and the ship's stamp should correspond to the final entry in Phase D (for Offshore scheme) or in Phase 10 (for Shuttle Tanker scheme). If the Master is not a DPO, the Statement of Suitability will need to be countersigned by a certified DPO on board.

If the Master is the holder of the logbook he/she should have this section signed by a certificated DPO or the Relief Master on board who should enter his/her own DP Certificate number.

### **2. TIME TO COMPLETE THE TRAINING SCHEME**

In order to avoid deterioration of skills during the training period, all elements of the DP training scheme shall be completed within four years. The four year rule applies for those who enter into the schemes from January 2015.

When applying for the Offshore or Shuttle Tanker Certificate and submitting documents to The Nautical Institute (the NI), ALL components of the programme (shore-based courses, DP sea time, task sections, Statement of Suitability form and other elements) must have been completed within the previous four years. In the event any of training phases fall outside of the four year validity period, the trainee will be required to repeat the expired training phase.

### **3. COMPANY CONFIRMATION LETTER**

Trainee DPOs are required to provide a confirmation or testimonial letter from the shipping companies for all the DP sea time in Phases B and D of the Offshore scheme, or for all the sea time and offshore loading of the Shuttle Tanker scheme. This letter shall follow the conditions below:

- a. Be written on **original headed paper** from the shipping company.
- b. Be signed and stamped by the Operations Manager or Marine Superintendent or equivalent. Letters signed by Masters or agency staff are not acceptable.
- c. Be written and dated only after the DPO has completed the DP sea time claimed.
- d. Confirm the total time the applicant has performed as a trainee DPO on board the vessel(s).
- e. Offshore scheme: recorded DP sea time must only include actual DP time served on board the vessel(s), not time on leave, attending courses, etc. This DP sea time must be broken down and listed as individual trips and days.
- f. Offshore scheme POSMOOR/TAM DP vessels: Time claimed on board POSMOOR/TAM DP vessels must be confirmed by the company through a confirmation letter. The company must confirm that the DP training was completed while anchors were not deployed. The NI reserves the right to ask for further and more detailed information, such as the deck log, if applicable.
- g. Shuttle Tanker scheme: recorded sea time, number, dates and location of the offshore loading operations.

- h. Limited DPO Certificate holders upgrading to Unlimited Certificates only need to provide confirmation of DP sea time days gained after their Limited Certificates were issued.
- i. DP sea time (for Offshore scheme) or offshore loading operations (for Shuttle Tanker scheme): experience not covered by a letter will not be considered for the DP application unless the candidate can prove extenuating reasons.
- j. The confirmation letter shall be obtained by the candidate and sent to the NI with their application, not after. Applications received by the NI without a confirmation letter for all the DP sea time claimed will be treated as a query which will delay issuing a certificate.
- k. It is the company's responsibility to cross-check the DP sea time claimed by the trainee DPO to ensure that the candidate has completed the proper training and undertaken the correct amount of DP sea time. Should any false statement be received, the NI reserves the right to take actions as necessary. The company should check the information that they are confirming against deck/DP logs and internal information.
- l. The NI reserves the right to undertake spot checks directly with the company to confirm the signees and any other relevant information for verification of sea time. This includes the daily report of the vessel and the crew list.

#### **4. CERTIFICATION APPLICATION**

The attention of trainee and Masters is drawn to the Logbook and Application guides that are available on the NI's Alexis Platform website (<http://www.nialexisplatform.org/>) and on request from the NI.

It is strongly recommended that the relevant guides are read before making an application in order to avoid incorrect completion of the logbook. Failure to meet the requirements for application of a certificate will cause a delay in issuing a certificate.

The logbook has been designed so that all elements of the training scheme can be completed and entered. In order to apply for a DP Certificate, the applicant is required to register his/her personal details and DP sea time online, through the NI's Alexis Platform website.

It is important that every period of service on board a DP vessel should have a start and finish date and be authenticated by the Master's signature. Entries without a finish date will not be counted towards the required DP sea time.

If the trainee DPO wishes to submit his/her logbook while still on board the DP vessel he/she should have an appropriate date entered and that date may not be in the future. Entries should not be block signed or stamped.

The trainee DPO may decide to stay on board after submitting their logbook to be assessed and verified by the NI. In that case this sea time cannot be used or counted towards DP sea time to obtain the DP Certificate and/or a future upgrade of their DP Certificate. The NI will only consider sea time gained after the issue date of the DP Certificate.

After completing the online application, the applicant shall send the following documents to the NI:

- Copy of the STCW or NVQ certificate (page with personal details, validity date and CoC number);
- Original DP logbook
- Copy of passport personal details page
- Original Company confirmation letter/s confirming all DP sea time;
- Signed and dated PDF checklist available on the candidate's account after payment. It is compulsory for the trainee DPO to sign the declaration of data contained in the online application
- Any other supporting documentation.

The NI reserves the right to return the logbook and application to candidates who do not apply online or if anything is found to be incorrect or incomplete in the application or training.

Companies which verify their candidates to ensure requirements have been met before an application is made to the NI tend to be more successful. This also assists the company in the management of their DP personnel and their training and progression.

## **5. LOSS OF CERTIFICATE OR LOGBOOK**

Certificates and logbooks are considered official and controlled documents by the NI and cannot exist in more than one copy. If the new logbook (grey or burgundy) is lost, the trainee is required to provide an affidavit and police report to the NI. Only the NI can replace the logbook. The logbook will be allocated the same individual number as the lost one and will bear a stamp on the appropriate pages indicating it is a duplicate.

If the trainee DPO holds an old version of the DP logbook, two situations will be considered:

- a. Holders of blue or green logbooks: these logbooks are not numbered and only the training centre where the trainee DPO undertook the Induction Course will be able to replace this document on condition of receiving a copy of the affidavit and police report from the trainee DPO. *Please note some training centres may no longer hold stock of these logbooks. If this is the case please contact the NI.*

Training centres are required to inform the NI of every logbook replaced and a note is put into the trainee DPO's Institute account for future verification.

If a DP Certificate has been issued, then the duplicate logbook and certificate can only be replaced by the NI.

- b. Holders of black logbooks issued in 2013: these logbooks are numbered and only The NI can replace them. The original affidavit and police report need to be sent to the NI.
- c. The logbook will be allocated the same individual number as the lost one and each page will bear a stamp indicating it is a duplicate.

## **6. FALSE INFORMATION OR FRAUDULENT APPLICATIONS**

The NI continues to receive a number of fraudulent DP applications so staff and training centres are being extra vigilant and cross-check directly with companies to verify DP sea time claimed by trainee DPOs.

Applications and certificates that are found to be fraudulent may be revoked and the individual banned from the NI's DP training scheme for a period of up to five years. Others found involved in the fraud cases may also have their DP Certificates removed and banned from the system for a period of time. The NI reserves the right not to accept applications or letters from companies involved in fraudulent cases.



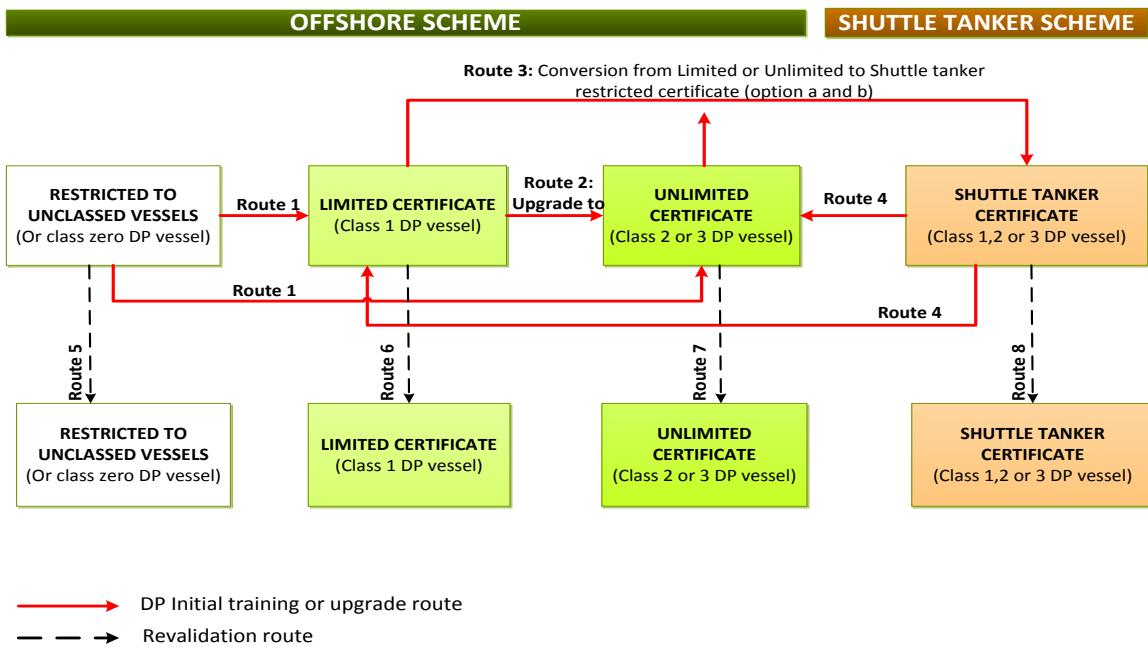
## **APPENDIX E**

# **REVALIDATION CRITERIA AND CONVERSION ROUTES FOR DP CERTIFICATES**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## APPENDIX E - REVALIDATION CRITERIA AND CONVERSION ROUTES FOR DP CERTIFICATES

### DP INITIAL TRAINING AND REVALIDATION ROUTE



### VALIDITY OF DP CERTIFICATES AND REVALIDATION ROUTES

Until 31<sup>st</sup> December 2014, a DPO's Certificate remained valid for as long as the holder regularly operated DP systems. Regularly was defined as a minimum of six months DP watchkeeping experience within the previous five years or work as a DP instructor at an NI-accredited training centre.

From 1<sup>st</sup> January 2015, all DP Certificates issued by The Nautical Institute (the NI) shall be revalidated every five years. Based on STCW standards and best practices, the NI will consider any **one of the following routes** for revalidation:

#### ROUTE 1: CONVERTING FROM UNCLASSED VESSELS TO LIMITED OR UNLIMITED DP CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE

To convert from an UNCLASSED Restricted Certificate to a LIMITED or UNLIMITED Certificate, the trainee DPO shall obtain a minimum of 120 DP sea time days on board a DP1 or 2/3 classed vessel + completion of a new task section + Statement of Suitability form signed off by the Master + confirmation letter from the company.

DP sea time used in the application before the issue of the UNCLASSED Restricted Certificate may be re-used in the conversion process provided a minimum of 60 DP sea time days is served on the relevant classed vessel after the issue date of the UNCLASSED Certificate. This DP sea time must be recorded in the NI DP logbook in the conversion pages. 75% of sea time gained must be active DP sea time and the remaining 25% can be passive DP sea time.

When applying for the removal of the restriction from the certificate, the NI will require the NI DP logbook, a new task section (*a printable version can be found on the website*), a new Statement of Suitability form signed by the Master of the last Class 1, 2 or 3 vessel, the **original 'RESTRICTED TO UNCLASSED VESSEL'** certificate and the confirmation letter from the shipping company for the new sea time experience to be sent in with the application.

The conversion DP sea time training shall be logged into the NI DP logbook and no other logbooks. The conversion request shall be completed through the online system, where the applicant shall use the same candidate customer account number that was issued with his/her first DP Certificate. At the end of this process, and if appropriate, a new Limited or Unlimited Certificate will be issued.

A simulation of how this conversion is calculated by the NI is explained below.

Example	Initial application where person gained Unclassed Certificate				New DP Time presented for Upgrade			<u>How much DP sea time this person has done in total on board classed vessel, summing up time for initial certificate and upgrade? (B+B1+RR+SS)</u>	NI verification of new DP sea time towards Limited/Unlimited certificate	
	DP sea time on <u>Unclassed</u> vessel	DP sea time on <u>classed</u> vessel	DP sea time on <u>classed</u> vessel	Total DP sea time	New DP sea time logged on a classed vessel	New DP sea time logged on a classed vessel	Total DP sea time on classed vessels		Result for a <u>LIMITED</u> Certificate	Result for a <u>FULL</u> Certificate
	(A)	DP1 (B) This is equiva lent to TCVDP1	DP2/3 (B1) This is equiva lent to TCVDP2 3	(C)	DP1 (RR)	DP2/3 (SS)	(E)		a) (B+B1) + (RR+SS) >= 120 days. b) (E) >= 60 days? c) SS>=60 days? d) Certificate issued?	a) (B+B1) + (RR+SS) >= 120 days. b) (E) >= 60 days? c) SS>=60 days? d) Certificate issued?
1	90	20	40	150	60	0	60	120	a) Yes b) Yes c) Yes d) Cert. issued	a) Yes b) Yes c) No d) No
2	43	52	40	135	25	20	45	137	a) Yes b) No c) No d) No. Candidate needs another 15 days on classed vessel to reach a minimum of 60 days required for full certificate	a) Yes b) No c) No. Candidate needs another 40 days on classed vessel to reach a minimum of 60 days required for full certificate d) No
3	28	70	30	128	50	28	78	178	a) Yes b) Yes c) No d) Cert issued	a) Yes b) Yes c) No d) No
4	52	28	40	120	24	40	64	132	a) Yes b) Yes c) No d) Cert. issued	a) Yes b) Yes c) No d) No
5	80	22	20	122	18	41	59	101	a) No b) No c) No d) No.	a) No b) No c) No d) No.

									Candidate needs 19 day on classed vessel to reach a minimum of 120 days	Candidate needs 19 day on classed vessel to total the 120 days required, being these 19 days to be done on DP Class 2/3 vessel
6	<b>15</b>	65	55	135	0	81	81	201	a) Yes b) Yes c) Yes d) No	a) Yes b) Yes c) Yes d) Cert. issued
7	<b>22</b>	35	63	120	30	5	35	133	a) Yes b) No c) No d) No.  Candidate needs 25 days on classed vessel to reach a minimum of 60 days as required	a) Yes b) No c) No d) No.  Candidate needs 55 days on classed vessel to reach a minimum of 60 days as required
8	<b>102</b>	21	0	123	40	10	50	71	a) No b) No c) No d) No. Candidate needs 49 more days on classed vessel to total 120 days and 10 to total a minimum of 60 days required for LIMITED Certificate.	a) No b) No c) No d) No. Candidate needs 49 more days on classed vessel to total 120 days and a minimum of 50 days on Class 2/3
9	<b>95</b>	21	39	155	65	0	65	125	a) Yes b) Yes c) No d) Cert. issued	a) Yes b) Yes c) No d) No
10	<b>32</b>	80	15	127	45	35	75	175	a) Yes b) Yes c) No d) Cert. issued	a) Yes b) Yes c) No d) No
11	<b>60</b>	25	45	130	40	23	63	133	a) Yes b) Yes	a) Yes b) Yes

									c) No d) Cert. issued	c) No d) No
<b>12</b>	<b>35</b>	90	80	205	10	0	10	215	a) Yes b) No c) No d) No. Although the candidate meets the 120 days required, another 50 days on a classed vessel is needed to meet the minimum 60 for upgrade	a) Yes b) No c) No d) No. Although the candidate meets the 120 days required, another 60 days on classed 2/3 vessel is needed to meet the minimum for upgrade
<b>13</b>	<b>28</b>	70	30	128	20	55	75	175	a) Yes b) Yes c) No d) Certificate issued	a) Yes b) Yes c) No d) No. candidate needs another five days to reach a minimum of 60 days on Class 2/3 vessel to obtain the full certificate

## **ROUTE 2: UPGRADE FROM LIMITED TO UNLIMITED CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE**

60 DP sea time days on board a DP2/3 classed vessel + Statement of Suitability upgrade form signed off by the Master + confirmation letter from the company.

Any DP time previously used to obtain a DP Limited Certificate cannot be used towards the time required for the removal of the restriction from the DP Certificate. Only DP sea time days from after the issue date of the Limited Certificate can be used.

## **ROUTE 3: CONVERSION FROM LIMITED OR UNLIMITED CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE TO SHUTTLE TANKER RESTRICTED CERTIFICATE**

For those DP Operators **holding a Limited or Unlimited Certificate** already issued by The Nautical Institute (the NI) and who wish to convert to the Shuttle Tanker Restricted Certificate shall follow the specifications in Route 8.

## **ROUTE 4: CONVERSION FROM SHUTTLE TANKER RESTRICTED CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE TO THE OFFSHORE CERTIFICATE (OUTSIDE OF THE REVALIDATION PERIOD)**

To convert a DP Certificate from Shuttle Tanker Restricted to an Offshore DP Certificate, applicants need to complete Course C (See Appendix C), 90 DP sea time days (not on board a shuttle tanker; this is equivalent to 75% of active DP sea time days required for the Offshore training scheme), Statement of Suitability sign-off and a company confirmation letter after the issue date of the Shuttle Tanker Certificate. All tasks in the task section would have been completed as mandatory during the Shuttle Tanker training and therefore do not need to be repeated for this conversion.

In this case, the type of DP Certificate will be determined by the class of the vessel on which the DP Operator has completed the DP sea time. This means that a Limited or Unlimited Certificate may be issued. In order to gain the Unlimited Certificate, the candidate must have undertaken a minimum of 60 DP sea time days on board a DP 2 or 3 classed vessel.

By the time the candidate applies for the conversion of the certificates, all the sea time in the logbook must be within the past four years. This means that if any sea time phase is out of date, he/she will be required to re-undertake that part of the training.

## **REVALIDATION ROUTES**

### **ROUTE 5, 6 and 7: REVALIDATION OF ‘UNCLASSED’ (ROUTE 5), LIMITED (ROUTE 6) AND UNLIMITED (ROUTE 7) CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE**

*Please note: For revalidation DP sea time for Route 6 and 7 must be obtained on a DP classed vessel unless an Unclassed Certificate is held (Route 5).*

The following rules apply to revalidating DP Certificates (Offshore scheme) currently held. To revalidate a certificate one of the following criteria should be met:

- a. If 150 days or more DP sea service is done within a period of five years, then the person needs to re-send the documents to the NI to receive a certificate with a new validity date.
- b. If the DPO has less than 150 days of DP sea service within the preceding five years, then the person needs to do a Simulator Course and a minimum of 30 days DP sea service.

- c. If no DP sea service was obtained within the period of the last five years, then the person would have to undertake a Simulator Course and do a minimum of 60 DP sea time days on a DP vessel to have his/her licence revalidated.
- d. The DPO can take the Revalidation Course without sea time to revalidate. Conditions relating to the Revalidation Course are specified in Appendix F.
- e. If the DP professional has been engaged in an occupation the NI considers as being equivalent to the sea service (i.e. DP lecturer/instructor, DP surveyor, DP consultant, DP auditor, DP superintendent, DP supervisor), revalidation of his/her DP Certificate will require a minimum of 150 days in the activity claimed in the preceding five years.

*The entries to prove the activity shall be made in an NI or IMCA logbook and signed by the accredited training centre (in the case of a DP lecturer), the vessel's Operations Manager (in the case of a DP superintendent, DP consultant, or DP supervisor) where the person has performed the work/activity or by NI's authorised person (in the case of a DP auditor). The sea time for this route must be obtained on a classed vessel unless an Unclassed Certificate is held.*

If the person decides to apply with a mix of experience in the last five years that involves DP activities and DP sea time days this experience will be totalled e.g. 20 days DP activities and 130 DP sea time days will equal the required 150 days. However if the total experience is less than 150 days then the criteria above shall be met.

Masters holding a DP Certificate can claim for the DP sea time due to their direct responsibility for and supervision of, DP operations. In this case, the DP sea time shall be recorded in the NI or IMCA logbook, signed and stamped as the DP Master.

Holders of NMD Certificates are eligible for the award of an NI Certificate. Upon successful completion of the criteria in this section, they will be issued with the NI DPO Certificate.

#### **NOTE**

- a. Passive DP sea time will not be accepted for revalidation purposes as it can only be counted for initial training in the task section of the logbook.
- b. POSITION MOORING (POSMOOR) or THRUSTER-ASSISTED MOORING (TAM): The time on board a vessel with the classification POSITION MOORING or THRUSTER-ASSISTED MOORING (TAM) and DP class notation can be counted towards the DP sea time obtained for revalidation purposes.

#### **ROUTE 8: REVALIDATION OF SHUTTLE TANKER RESTRICTED CERTIFICATES ISSUED BY THE NAUTICAL INSTITUTE**

The following criteria shall be used for **revalidating** the DP Certificates for shuttle tankers:

- a. Revalidation of a Shuttle Tanker DPO Certificate requires participation in at least 18 offshore loading operations and one set of annual trials (or FMEA) within a five-year period.
- b. If less than 18 offshore loading operations but more than six, within the past five years. Complete Course B, followed by Phases 10 and 11 of the Shuttle Tanker scheme.
- c. If less than six offshore loading operations within the past five years. Complete Phases 3 to 11 of the Shuttle Tanker training scheme restarting the process with the DP Simulator Course (Phase 3).
- d. Where these revalidation requirements specify participation in annual trials or a FMEA test within a five-year period, in exceptional circumstances this requirement may be fulfilled by participation in an additional Simulator Course (such as Offshore Loading Phase 3) in lieu of the trials, completed during this five-year period.

## CONVERTING AND REVALIDATING FROM 1<sup>st</sup> JANUARY 2015 WHILE WORKING ON SHUTTLE TANKERS

Those issued with a Limited or Unlimited Certificate by the NI and who do not have sufficient DP sea time days to revalidate their certificates at the end of the five-year period, may choose to have their certificate revalidated as a Shuttle Tanker Restricted Certificate. In such cases, the conditions of Route 8 will apply. Those converting from the Offshore Certificate to Shuttle Tanker Certificate will require a Statement of Suitability signed off.

Where these revalidation requirements specify participation in annual trials or a FMEA test within a five-year period, in exceptional circumstances this requirement may be fulfilled by participation in an additional Simulator Course (such as Offshore Loading Ph3) in lieu of the trials, completed during this five-year period.

All offshore loading operations, FMEA and trials must be confirmed by the company through a confirmation letter. The confirmation letter shall only be signed by the Operations Manager or person of equivalent position.

**NOTES:** The DP Certificate issued during revalidation will be the same type of the certificate initially issued, irrespective of the class of the vessel the candidate has served on within the previous five years.

Candidates wishing to remove the limitation of their certificates or change to the Shuttle Tanker scheme should take the conversion route to obtain a new certificate from the NI.

The revalidation of DP Certificates will start on 1<sup>st</sup> January 2015 and will be phased as below:

**2015:** Revalidation of DP Certificates issued from 1984 to 2002, 2009 and 2010

**2016:** Revalidation of certificates issued from 2003 to 2004 and 2011

**2017:** Revalidation of certificates issued from 2005 to 2006 and 2012

**2018:** Revalidation of certificates issued from 2007 to 2008 and 2013

**2019:** Revalidation of certificates issued in 2014 and so on

Candidates are required to apply for revalidation of their DP Certificates in the same month that the initial certificate was first issued and as is shown on the DP Certificate.

IMCA logbooks can be used towards revalidation only. The hours recorded in an individual's IMCA logbook will be divided by 2 to get the number of DP days that the person has obtained in the last five years. This is shown in the formula below:

*(Total number of hours for each embark / 2h) =< X  
Where X cannot be more than the number of days embarked.*

The 2 hours comes from the definition of DP sea time for the offshore industry.



## **APPENDIX F**

## **REVALIDATION COURSE**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **APPENDIX F - REVALIDATION COURSE**

### **1. INTRODUCTION**

The Nautical Institute (the NI) has introduced an alternative route to revalidation through the implementation of a Revalidation Course. The requirements for the Revalidation Course are established through this document.

### **2. MINIMUM ENTRY QUALIFICATION REQUIREMENTS**

The minimum entry requirement is a DPO Certificate issued by the NI. The original DPO Certificate should be presented at the DP centre where the Revalidation Course is completed.

The Revalidation Course may be completed up to six months before the revalidation date set by the NI. The course will be valid for a period of 12 months only, in which the DPO must send in an application into the NI.

If the participant is completing the course for the first time, there is no minimum DP sea time requirement.

If the participant is completing the course for a second or subsequent time, a minimum of 28 DP sea time days will be required to revalidate. This DP time may be completed prior to or after the Revalidation Course.

*Where a participant subsequently revalidates after taking the course by completion of the full sea time requirement of 150 DP sea time days that participant can then take the Revalidation Course again without a DP sea time requirement.*

Legacy and Grandfathered certificate holders will be able to take the course to revalidate until 31<sup>st</sup> December 2019. After this date previous Legacy and Grandfathered certificate holders will need to complete DP sea time days towards revalidation.

*Please Note: Shuttle Tanker Certificate holders will be unable to revalidate their certificates with the Revalidation Course. For information on how to revalidate a Shuttle Tanker Certificate or convert to the Offshore Scheme please see Appendix E.*

### **3. NUMBER OF HOURS**

A minimum of 34 hours of teaching and simulator time is required for this course which includes the time needed for the examination and assessments. The course must schedule both practical and theoretical aspects with about 50% of the time assigned to each. The course is to be delivered over five days.

### **4. RATIO OF STUDENTS/INSTRUCTORS/EQUIPMENT**

The NI allows a maximum of four students per class being taught by one instructor per one Class B or A Simulator.

By exception and where justified, five or six students may be considered at the discretion of the NI's Accreditation Team, based on the number of simulators in place, rotation of students and the use of the training methodology in place.

When two simulator systems ASOG/CAMO are available in a training centre, the best practice is to keep the trainee on the same simulator throughout the course.

A minimum requirement is to use an NI DP Class B Simulator to correspond with the training objectives for the Revalidation Course.

### **5. DELIVERY METHOD**

Training will be split equally between theory and practical exercises. Theory may be used to support the practical exercises either as a briefing, a de-briefing or for demonstration purposes.

## **6. COURSE AIMS**

The course is intended for those who have already been issued a DPO Certificate from the NI but are unable to revalidate their DPO Certificate if they have not gained sufficient DP sea time. The overall course aim is to update the DPOs with the latest rules and regulations, position references and sensors, known DP incidents and lessons learned. At the end of the course, the student should:

- Have acquired knowledge of the latest rules and regulations
- Have acquired knowledge of the latest developments within sensors and PRS
- Have acquired knowledge of the latest relevant DP incidents and why they occurred
- Be able to recognise the various alarm, warning and information messages
- Carry out operational planning, risk assessment and hazard identification tasks
- Set up the DP system for a particular task/operation
- Decide on courses of action because of systems failure

## **7. COURSE OBJECTIVES**

The following is a list of the objectives which should be attained by the DPOs upon completion of the Revalidation Course.

**By the completion of the training session or period for DP Rules and Regulations the trainee should be able to:**

1. List the various providers of documents containing statutory requirements and guidance relating to DP operations, including:
  - a. IMO (including IMO MSC/Circ. 645 of 1994 Guidelines for Vessels with Dynamic Positioning Systems)
  - b. Classification society DP rules
  - c. International Marine Contractors Association (IMCA)
  - d. Marine Technology Society (MTS)
  - e. IMCA and MTS guidelines for ASOG
2. Explain the purpose of documentation associated with DP operations, such as DP operations manuals, Failure Modes and Effects Analysis (FMEA) and capability plots
3. Describe the IMO (DP) equipment classes and their application, with reference to the IMO Guidelines for Vessels with DP Systems.
4. Understand the importance of reporting DP incidents knows where to find DP incident reports and knows how to report DP incidents.

**By the completion of the training session or period for DP Sensors and PRS the trainee should be able to:**

5. Describe the following position reference systems commonly associated with DP installations: Differential GNSS, hydroacoustic, INS, taut wire, Artemis, FMCW Radar and laser-based systems.
6. Describe the failure modes of the following position reference systems: Differential GNSS, hydroacoustic, INS, taut wire, Artemis, FMCW Radar and laser-based systems.
7. Describe the following sensors associated with DP installations: vertical reference sensor/unit, motion reference unit, gyro compass, wind sensor (anemometer) and draught input sensor. ASOG, TAM and CAM.
8. Describe the failure modes of the following sensors: vertical reference sensor/unit, motion reference unit, gyro compass, wind sensor (anemometer) and draught input sensor.

**By the completion of the training session or period for DP Set Up the trainee should be able to:**

9. Ensure the vessel is on DP in accordance with the vessel's class and the vessel's operation manual. Class approved FMEA and ASOG (Complete DP Checklist)
10. Determine and set alarm and warning limits
11. Evaluate most appropriate PRS for specific DP-operations
12. Select the number of position reference systems required in accordance with the DP class
13. Use correct thruster allocation for a specific operation and weather conditions
14. Test vessel's manoeuvring capability during prevailing weather conditions

15. Determine a Safe Position and minimum distances to stabilize the vessel in DP
16. Obtain information and clearance from e.g. installation, on issues important for the safe operation of the vessel under DP.

**By the completion of the training session or period for DP Bridge Watchkeeping the trainee should be able to:**

17. Demonstrate a continuous awareness of the vessel's status, operation and impact of operating under DP
18. Recognise the importance of maintaining lookout and awareness of the external situation including weather when controlling a vessel close to installations or other objects
19. Recognise situations in which to call the Master to the bridge
20. Log and report DP station keeping events
21. Monitor position reference systems, sensors and signal quality in anticipation of the possibility of failure causing instant/violent reaction from main engines/thrusters
22. Monitor power output and thrust
23. Monitor thruster efficiency for station-keeping at different headings and drafts, which may affect DP Class
24. Recognise DP-related changes in vessel systems and technical equipment which may affect DP Class
25. Recognise technical and operational issues which may limit or stop DP operations
26. Monitor that the DP operating parameters of continuous operating power are not exceeded.

**By the completion of the training session or period for Position Keeping the trainee should be able to:**

27. Recognise alarms related to the incorrect operation of the DP-system and maintaining position
28. Acknowledge alarms within time constraints
29. Discuss alarms with relevant department
30. Evaluate the possible consequences of each alarm and possibility to continue the operation
31. Analyse the consequence analysis alarm
32. Interpret visual indicators, indicating conditions which may result in malfunction of DP
33. Monitor movement of the vessel and changes in the position and heading, in keeping with safe excursion limits depending upon the ongoing task/operations
34. Monitor movement of the object / installation / target
35. Monitor by various means, changes in distance/heading between object and own vessel (if applicable)
36. Recognise limitations of vessel movement when having equipment or divers deployed.

**By the completion of the training session or period for Environmental Conditions the trainee should be able to:**

37. Recognise changes in environmental conditions
38. Recognise when environmental conditions become critical with reference to station keeping
39. Recognise increased importance of situational awareness when operating close to floating objects.

**By the completion of the training session or period for Alarms and Indicators the trainee should be able to:**

40. Identify the procedures to follow for DP and non-DP alarms
41. Identify the procedures for when to change DP Alert status (e.g. from green to amber/yellow, or red).

**By the completion of the training session or period for Change of DP Watch the trainee should be able to:**

42. Prepare a hand-over checklist
43. Transfer vessel's status and DP-details when handing over the watch (where not covered by the watch-keeping checklist)
44. Provide an update on the ongoing operation and planned operational activities
45. Review a hand-over checklist
46. Verify vessel's position or movement and status
47. Interpret all necessary information of vessel and operation

48. Take-over / hand over DP-watch in a formal and clear manner
49. Determine the DP-status and recent occurrences which may have an effect on the DP-operation during the watch.

**By the completion of the training session or period for Normal Completion of a DP Operation the trainee should be able to:**

50. Identify safe departure route and best vessel heading for departure
51. Recognise external dangers prior to departure
52. Identify an Emergency Escape route which may or may not be the same as the normal departure route
53. Retrieve Position Reference System Equipment from e.g. the installation or seabed (if applicable and as part of a Departure checklist)
54. Demonstrate moving to a safe position in appropriate steps
55. Recover / retract deployed equipment (if applicable).

**By the completion of the training session or period for Operating in Joystick Mode (DP Joystick) the trainee should be able to:**

56. Stop the vessel at a pre-determined position
57. Determine the need to stop the vessel completely before switching to DP control (system specific)
58. Operate the DP Joystick to maintain position and/or heading in a controlled and safe manner
59. Operate the DP Joystick to change position and/or heading in a controlled and safe manner
60. Demonstrate DP Joystick station-keeping of the vessel under prevailing weather conditions.

**By the completion of the training session or period for Emergency Situation the trainee should be able to:**

61. Move the vessel to a safe position in a safe and controlled manner
62. Demonstrate an awareness of the Emergency Escape Route.

**By the completion of the training session or period for Emergency Performance/Response the student must demonstrate at least two of the following:**

63. Demonstrate actions in case of unstable Position Reference System(s)
64. Demonstrate actions when losing Position Reference System(s)
65. Demonstrate actions if Position Reference System(s) suddenly indicate significant changes in position/range/bearing data
66. Demonstrate actions in case of error in wind input
67. Demonstrate actions in case of a DP drive-off
68. Demonstrate actions in case of a DP drift-off
69. Demonstrate actions in case of a DP force-off
70. Demonstrate actions in case of one thruster runoff
71. Demonstrate actions in case of error in sensor input
72. Demonstrate the proper sequence of actions if experiencing an onboard emergency which may influence DP-control during DP-operations
73. Explain actions when losing all DP control functions
74. Explain the proper sequence of actions if colliding or about to collide with an installation, nearby objects or vessels during DP-operations.

## **8. COURSE ASSESSMENT**

The assessment for the Revalidation Course includes a theoretical (online) and a practical assessment. Each component must be completed successfully. There is no specific order in which they must be completed. After the course is completed, an entry will be made in the appropriate logbook.

## **9. ONLINE ASSESSMENT**

In order to be awarded a certificate of completion for the Revalidation Course the DPO must pass an online assessment at the training centre.

The exam is composed of multiple choice questions that have already been developed from the Basic /Induction Course and the Simulator Course. The online assessment will consist of 30 questions and shall be completed in one hour with a pass mark of 70%.

Students who fail the first attempt are allowed to have another two attempts within six months of the first attempt; however, the second attempt must be undertaken within 96 hours of the first attempt. If the student fails these three attempts, they are student is required to repeat the Revalidation Course and undertake the assessment again.

## **10. PRACTICAL ASSESSMENT**

The practical assessment must be done individually. The practical assessment shall include the following items which the student must pass to be awarded a certificate of completion for the Revalidation Course:

- Complete a DP Checklist
- Set up the vessel on DP
- Move the vessel from setup position to a worksite
- Deal with a system/sensor/thruster failure or environmental change (at least two)

The training centres must develop their own practical exams based upon the course objectives listed above.

The student must pass all the four items listed above. The training centre is responsible to ensure that the assessment is carried out in a professional manner and that the student is assessed with thoroughness in line with the standards of the NI.

### **10.1. Practical Assessment Guidance for Training Centres**

Below you will find guidance for the development and the examination process for the practical assessment for the Revalidation Course.

#### **10.1.1. General Guidance**

- Duration of practical assessment: Between one and two hours
- Pass or fail criteria: This item will be the most challenging. The student performance is evaluated by the instructor and in an ideal world; such an evaluation should be objective. Although the student must pass all items it could be that some items are performed as a "pass" whilst other items could be defined as "fail". It will be the overall performance of the student which determines if the practical assessment is a pass or fail. Failing for example, to identify a small position deviation from one of the PRS inputs would not necessarily mean that the student failed. Failing to identify that the vessel has lost DP Class and that the vessel is now operating without redundancy, would. Depending on the nature of the fail it is up to the DP Training Centre to determine if the student should be allowed to retake the practical assessment. If the fail is related to safety critical items, as determined by the Training Centre, the student should not be allowed to retake the assessment, but should retake the course. Reason(s) for failing the student should be given to the student in writing.
- Students who fail at the first attempt, and are allowed to retake the practical assessment, can do this only once. The second attempt must be agreed with the DP Training Centre and carried out at their convenience.

#### **10.1.2. Practical Assessment Scenario Guidance**

##### Exam Scenario

After passing the written exam, each student will randomly draw a number linked to the scenario he/she will be examined on.

Scenarios are to be based on the course training objectives. All scenarios should be equal in complexity.

Each scenario will end with the vessel located at a worksite in close proximity to a platform/structure. This could be a fixed platform, a semi-submersible rig, another vessel, etc.

Based on the task to be performed by the vessel (at the worksite), there should be at least two possible locations where the vessel can be positioned to complete the task (one drift on and one drift off). The student will be expected to choose the better of the two. The following are two examples of scenarios that could be used. The vessel might be required to do an ROV inspection of a platform where there is sufficient tether available to work at both locations. The vessel might be required to position under a crane for cargo operations where there are two cranes available (one upwind and one downwind).

Each centre shall develop its own practical exam scenarios based on the DP equipment fitted and the simulated platforms/structures it has available.

The centre will have 10 to 15 scenarios available for exam purposes. This will permit all students to have a random selection. Multiple scenarios can be created by using the same structure/vessel/task and simply changing the environmental conditions.

Time for planning the practical assessment shall be allocated to the student. Before the exam (20 minutes), each student will be presented with his/her scenario. This will permit the student time to develop a plan as to how they will proceed. One student can carry out the exam while the other is planning, this will save time during the exam process.

Prior to starting the exam, the student will be asked to state the planned vessel position and heading when at the final worksite. The student will also state the direction from which (bearing) he/she will approach the worksite and the desired heading at exercise start. All students will start at the same distance from the worksite. Before starting the exam, the instructor will place the vessel (exercise start position) on the bearing and heading specified by the student.

#### Checklist/Set up on DP

The DP checklist below is a sample only. It indicates the extent to which checks are to be conducted and the content required. Each centre will develop its own checklist based on DP equipment fitted, vessel power plant, thrusters, reference systems fitted, etc. The flow and layout of the checklist would also be as required by the individual centre. The centre may wish to increase the content of the checklist and is free to do so.

There are items that may be omitted i.e. the below sample has two means of determining vessel capability after worse case failure (DP capability plot and deselecting thrusters). Only one means would be required.

The sample below would take approximately 20 to 25 minutes for someone who is familiar with the DP system/vessel. Ability of the individual student will vary. The students are to use the same checklist for the exam as they do during course exercises. They will also be informed that the checklist is part of the exam.

Some items on the checklist will require the vessel to be set up on DP. Therefore at some point during completion of the checklist, the student will place the vessel in DP mode.

Based on the results of the checklist, the student can request changes to generator, power, switchboard or thruster configurations. The student may also alter the planned approach route and final worksite heading/position, based on the results of the checklist.

#### Approach to Worksite

After completing the checklist and set up on DP, the student will move the vessel to the worksite. The speeds and methods used by the individual student will vary. If the vessel is outside the 500m zone at the start, this could take considerable time. As a benchmark, a single move of 500m at 0.25m/sec

would require 33 minutes. The actual moves during the exam will be undertaken in increments and at varying speeds, making it difficult to indicate an actual time for this item. To reduce time requirements, for exam purposes, the exam may start at distance of 250 to 300m from the worksite.

#### At the Worksite

The actual vessel task at the worksite can be as determined by the training centre. This might be diving operations, ROV operations, cargo operations, etc.

The type of practical assessment (i.e. DP operation) should have been reflected or revised during the Revalidation Course.

The last stage of the exam will be introducing a DP fault/failure or environmental change for the student to deal with.

This specification identifies possible faults and indicates that at least two must be utilised. Both can be introduced after the vessel is on location at the worksite but one must be introduced at this stage. The other can be introduced at any stage in the exam, after the vessel is set up on DP. Considering the above, the exact timing of fault injection and the faults to be used, with a particular scenario, will be determined by the training centre.

#### Exam Time Required

If the exam starts at a distance of 250m from the worksite, the total time required for the practical exam should be one to two hours per student. The extent to which the simulated DP operation progresses (after positioning at the worksite) is determined by the training centre.

The first student will require more time as he/she would require time to plan (20 minutes). Subsequent students would get the same amount of planning time but would be doing so while another is being examined.

#### **10.1.3. Practical Assessment Mark Sheet Example**

Each Training Centre must ensure that the training objectives are assessed in a proper manner. It might be difficult to assess each student on all training objectives. Therefore, it would be recommended that a selection of training objectives should be covered during the assessment.

Below are the items to be evaluated during the practical assessment. Exercises are to be structured to enable evaluation for the items listed below.

# Mark Sheet Exam Number 1

## Practical Assessment DP Revalidation Course

Name of student:	Exercise name/number:	Overall Pass/Fail	Instructor sign
	1		

Task no:	Task description: DP Planning	Pass	Fail
1	Carry out operational planning, risk assessment and hazard identification tasks.		
2	Evaluate most appropriate PRS for the DP operation, in accordance with the DP class.		
3	Determine the most appropriate final working position and heading.		
4	Identify emergency escape route.		
	<b>Additional Comments:</b>		

Task no:	Task description: DP Set Up	Pass	Fail
1	Complete DP checklist with accurate recording of data.		
2	Select DP joystick mode. Operate the DP Joystick to maintain position and/or heading in a controlled and safe manner.		
3	Set up the vessel on DP in a controlled and safe manner.		
4	Use correct thruster allocation for the operational and environmental conditions.		
5	Ensure the vessel is on DP in accordance with the vessel's required class; for the operation being conducted (determine capability).		
6	Determine and set appropriate alarm and warning limits for the operation being conducted.		
7	Select appropriate gain setting.		
	<b>Additional Comments:</b>		

<b>Task no:</b>	<b>Task description: DP Operations</b>	<b>Pass</b>	<b>Fail</b>
1	Move the vessel to the final working location using appropriate movement steps.		
2	Move the vessel to the final working location at safe speed/speeds.		
3	At the final working location, select appropriate and reliable PRS in accordance with the DP class.		
4	Monitor and recognise any changes in position reference system or sensor performance.		
5	Monitor and recognise any change in power or thrust output.		
6	Monitor and recognise any changes in environmental conditions.		
7	Continue to ensure the vessel is on DP in accordance with the vessel's required class, for the operation being conducted (monitor capability).		
	<b>Additional Comments:</b>		

<b>Task no:</b>	<b>Task description: DP Failure Modes</b>	<b>Pass</b>	<b>Fail</b>
1	Recognise and respond to fault/system failure/environmental change and associated alarms.  Specify failure mode: _____  _____		
2	Recognise and respond to fault/system failure/environmental change and associated alarms.  Specify failure mode: _____  _____		
3	Evaluate the possible consequences of each alarm and the effect on continuing the operation.		
4	Change DP Alert status (e.g. from green to amber/yellow, or red) to reflect operational condition.		
	<b>Additional Comments:</b>		

## **REVALIDATION COURSE TIMETABLE**

Below is a suggested timetable, which can be used for the Revalidation Course.

### **Day 1**

<b>Time</b>	<b>Subject</b>	<b>Comments</b>
AM	Registration, Introduction – Experience mapping  Familiarisation with centre equipment.	Experience mapping would be a vital part of the Revalidation Course. The previous experience and knowledge of the participants must be addressed and acknowledged during the course.
AM	Exercise briefing and exercise planning	Planning to be monitored by the instructor and guidance given as needed. Guidance can be tailored to incorporate course objectives where the opportunity presents.
Lunch		
PM	Run exercise	Exercise designed to meet course objectives.
PM	Debrief exercise	Debrief can be tailored to incorporate course objectives where the opportunity presents.
PM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.

### **Day 2**

<b>Time</b>	<b>Subject</b>	<b>Comments</b>
AM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.
AM	Exercise briefing and exercise planning	Planning to be monitored by the instructor and guidance given as needed. Guidance can be tailored to incorporate course objectives where the opportunity presents.
Lunch		
PM	Run exercise	Exercise designed to meet course objectives.
PM	Debrief exercise	Debrief can be tailored to incorporate course objectives where the opportunity presents.

PM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.
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### Day 3

Time	Subject	Comments
AM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.
AM	Exercise briefing and exercise planning	Planning to be monitored by the instructor and guidance given as needed. Guidance can be tailored to incorporate course objectives where the opportunity presents.
Lunch		
PM	Run exercise	Exercise designed to meet course objectives.
PM	Debrief exercise	Debrief can be tailored to incorporate course objectives where the opportunity presents.
PM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.

### Day 4

Time	Subject	Comments
AM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.
AM	Exercise briefing and exercise planning	Planning to be monitored by the instructor and guidance given as needed. Guidance can be tailored to incorporate course objectives where the opportunity presents.
Lunch		
PM	Run exercise	Exercise designed to meet course objectives.
PM	Debrief exercise	Debrief can be tailored to incorporate course objectives where the opportunity presents.
PM	Lecture covering course objectives	Centre to decide content of the lecture, keeping to course objectives.

**Day 5**

<b>Time</b>	<b>Subject</b>	<b>Comments</b>
AM	Practical and theoretical examination	Practical examination on a minimum NI Class B Simulator. Theoretical On-Line examination.
Lunch		
PM	Examination continued, if required.	

## **DP CHECKLIST**

Below is a suggested DP Checklist, which can be used for the Revalidation Course.

## **DP Checklist**

Date \_\_\_\_\_ Time \_\_\_\_\_ Location \_\_\_\_\_

Position N \_\_\_\_\_ E \_\_\_\_\_

Water Depth \_\_\_\_\_

Lights / Shapes (On/Up) Y / N

Read Latest Forecast Y / N

Lamp/Alarm Test Completed & O.K. Y / N

### **System Setup**

Controller Online A B

Operator Station in Use 1 2

Centre of Rotation Selected \_\_\_\_\_

Speed Setting \_\_\_\_\_ Knots

Turn Rate Setting \_\_\_\_\_ °/minute

High Precision Gain Selected \_\_\_\_\_ Setting: Low Medium High

Customised Gain Selected \_\_\_\_\_ Setting: Surge \_\_\_\_\_ Sway \_\_\_\_\_ Yaw \_\_\_\_\_

### **Alarm Limits**

Position Alarm Settings Warning \_\_\_\_\_ Alarm \_\_\_\_\_ Enabled Y / N

Heading Alarm Settings Warning \_\_\_\_\_ Alarm \_\_\_\_\_ Enabled Y / N

### **Power**

Generators Available #1 \_\_\_\_ #2 \_\_\_\_ #3 \_\_\_\_ #4 \_\_\_\_ #5 \_\_\_\_ #6 \_\_\_\_

Generators Online #1 \_\_\_\_ #2 \_\_\_\_ #3 \_\_\_\_ #4 \_\_\_\_ #5 \_\_\_\_ #6 \_\_\_\_

Main Switchboard Split Y / N

UPS Checked & O.K. Y / N

## **Propulsion**

Thrusters Available for DP Control	#1 __ #2 __ #3 __ #4 __ #5 __ #6 __ #7 __
Thrusters Selected	#1 __ #2 __ #3 __ #4 __ #5 __ #6 __ #7 __
Thruster #3 on	Bus 1 __ Bus 2 __
Rudders Available for DP Control	Port __ Stbd. __
Rudders Selected	Port __ Stbd. __
Thruster Mode Selected	_____

## **Sensors**

Gyros Available	#1 __ #2 __ #3 __
Gyro in Use	#1 __ #2 __ #3 __
Differences Checked & Acceptable	Y / N
Vessel Heading in Use	_____ °
Wind Sensors Available	#1 __ #2 __ #3 __
Wind Sensor in Use	#1 __ #2 __ #3 __
Differences Checked & Acceptable	Y / N
Wind Speed & Direction in Use	_____ Knots _____ ° True
VRS Available	#1 __ #2 __ #3 __
VRS in Use	#1 __ #2 __ #3 __
Differences Checked & Acceptable	Y / N
Values Used	Heave _____ Pitch _____ Roll _____
Draught Sensor Available	Y / N
Draught Input	Sensor __ Manual __ Operational __ Transit __
Draught Input Checked & Acceptable	Y / N
Draught in Use	_____ m

## **Position Reference Systems**

	Available	In Use (Accuracies Checked & Acceptable)			
Artemis	Y / N	Y / N			
DGPS 1	Y / N	Y / N			
DGPS 2	Y / N	Y / N			
Fanbeam	Y / N	Y / N			
HPR 1	Y / N	Y / N	Transponders	_____	_____
HPR 2	Y / N	Y / N	Transponders	_____	_____
Radius	Y / N	Y / N	Transponders	_____	_____
Taut Wire Port	Y / N	Y / N			
Taut Wire Stbd.	Y / N	Y / N			
Gate Valves	Port:	Open / Closed	Stbd.:	Open / Closed	
HPR Poles	Port:	Down / Up	Stbd.:	Down / Up	
ROV Transponder	_____				
Co-ordinate System set to Display UTM		Y / N			
Datum Settings Checked & O.K.		Y / N			

## **Joystick**

Joystick Thrust	Reduced	_____	Full	_____
Joystick Precision	High Speed	_____	General	_____
Joystick Environmental Comp.	Surge	_____	Sway	_____
Joystick Operational	Y / N			

## **Propulsion Status**

Thruster Setpoint/Feedback O.K.	Y / N
Rudder Setpoint/Feedback O.K.	Y / N

## **Power Status**

Power (if Bus is Common):	Used	_____	Available	_____	
Power (if Bus is Split):	Bus 1	Used	_____	Available	_____
	Bus 2	Used	_____	Available	_____

### **Communications Tested & O.K. (as applicable)**

Crane Cab/Cabs	Y / N		
Deck (Pipe/Cable Lay)	Y / N	DP Status Lights	Y / N
Dive Control	Y / N	DP Status Lights	Y / N
Engine Control Room	Y / N		
ROV Control	Y / N	DP Status Lights	Y / N

### **Checklists**

Dive Checklist Complete	Y / N
ROV Checklist Complete	Y / N
Engine room Checklist Complete	Y / N

### **Vessel Capability**

Consequence Analysis Enabled	Y / N
Capability Plot Setup & Checked	Y / N
Deselect Thrusters	#1, (#3), #5 & #7 (When #3 is connected to BUS 1)
Position Maintained	Y / N <u>Reselect Thrusters</u>
Deselect Thrusters	#2, (#3), #4 & #6 (When #3 is connected to BUS 2)
Position Maintained	Y / N <u>Reselect Thrusters</u>
Vessel on Auto DP for 30 Minutes	Y / N

DP Current	_____
Alarms Page Checked	Y / N
Printer Online	Y / N
Print Status	Y / N

Signed \_\_\_\_\_ Date \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_



## ANNEX 1

# **STCW PART B<sup>1</sup> Guidance on the training and experience for personnel operating dynamic positioning systems**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **ANNEX 1 - STCW PART B<sup>1</sup> Guidance on the training and experience for personnel operating dynamic positioning systems**

### **Section B-V/f\***

1. Dynamic positioning is defined as the system whereby a self-propelled vessel's position and heading is automatically controlled by using its own propulsion units.
2. Personnel engaged in operating a Dynamic Positioning (DP) system should receive relevant training and practical experience. Theoretical elements of this training should enable Dynamic Positioning Operators (DPOs) to understand the operation of the DP system and its components. Knowledge, understanding and experience gained should enable personnel to operate vessels safely in DP, with due regard for safety of life at sea and protection of the marine environment.
3. The content of training and experience should include coverage of the following components of a DP system:
  - a. DP control station;
  - b. power generation and management;
  - c. propulsion units;
  - d. position reference systems;
  - e. heading reference systems;
  - f. environmental reference systems; and
  - g. external force reference systems, such as hawser tension gauges.
4. Training and experience should cover the range of routine DP operations, as well as the handling of DP faults, failures, incidents and emergencies, to ensure that operations are continued or terminated safely. Training should not be limited to DPOs and DP Masters only; other personnel on board, such as electro-technical and engineer officers, may require additional training and experience to ensure that they are able to carry out their duties on a DP vessel. Consideration should be given to conducting appropriate DP drills as a part of onboard training and experience. DPOs should be knowledgeable of the type and purpose of documentation associated with DP operations, such as operational manuals, Failure Modes and Effects Analysis (FMEAs) and capability plots.
5. All training should be given by properly qualified and suitably experienced personnel.
6. Upon appointment to a vessel operating in DP mode, the Master, DPOs and other DP-trained personnel should be familiarised with the specific equipment fitted on and the characteristics of the vessel. Particular consideration should be given to the nature of the work of the vessel and the importance of the DP system to this work.

\*Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B/Ve, B-V/f and B-V/g

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<sup>1</sup> STCW Including 2010 Manila Amendments: STCW Convention and STCW Code. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers. IMO International Maritime Organization, 2011, p 341



## **ANNEX 2**

### **TRAINING CENTRE ARRANGEMENTS**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **ANNEX 2 - THE PROCESS FOR ACCREDITATION BY THE NAUTICAL INSTITUTE**

### **1. REQUESTING ACCREDITATION STANDARD**

Anyone interested in opening a DP training centre can request a copy of this document which is also available on the NI Alexis Platform website. Please refer to the latest version.

### **2. THE NAUTICAL INSTITUTE SENDS STANDARD**

The Nautical Institute (the NI) will send the Standard to anyone interested in opening a DP training centre.

### **3. ACCREDITATION REQUEST**

A training provider wishing to seek NI accreditation can do so by contacting the NI's Accreditation department.

### **4. CONTENTS OF A FORMAL REQUEST FOR ACCREDITATION**

The formal request for accreditation should contain the following information:

- Details of the centre
- Details of the contact person at the centre
- The name of the course or programme (Induction and Simulator; Sea Time Reduction; Shuttle Tanker Courses)
- Description and layout of the equipment
- Instructor CVs, photographs and DP Certificates
- A copy of each instructor's training programme signed off by an experienced training DP instructor (see definition in Annex 6).
- Relevant forms such as the Accreditation application, Accreditation agreement, confidentiality agreement and checklist should be signed and sent into the NI.

### **5. TIMING OF THE REQUEST**

The NI requires centres to apply for accreditation at least three months before the date requested for assessment so that pre-assessment queries can be resolved and travel booked in advance.

### **6. ACCREDITATION AGREEMENT**

Before any further progress towards accreditation, the training provider must sign an Accreditation Agreement with the NI.

### **7. SETTING AN AUDIT DATE**

The NI and the training centre will agree a date for the audit based upon availability of auditors and the schedule of courses at the centre. The audit (for new accreditation or reaccreditation) must take place while a Simulator Course is being run. If a full class of students is not available, suitably qualified individuals may sit the course at the time of the audit, so that the auditor can check on the simulator equipment, the teaching methodology and other elements of the course.

### **8. THE AUDITORS**

At all times there will be a minimum of two auditors. One will audit the technical equipment and teaching methodology and the other, a trained auditor linked to the NI's administrative staff, will audit the centre's administrative and management procedures. Additional specialist assessors may be called in when appropriate.

### **9. DUTIES AND CONDUCT OF ACCREDITATION TEAM MEMBERS**

Team members will:

- Review and report on the materials submitted by training centres
- Participate in accreditation visits and related activities in accordance with the guidelines, policy and procedures specified by the NI
- Maintain confidentiality with respect to information gained from centres during the accreditation process. They will not discuss the training centre's activities, duplicate training materials received from the centre or discuss confidential information without appropriate permission
- Return all training materials received from a centre either to the centre or the NI

- Act in the best interest of the NI and in accordance with good professional conduct.

## **10. DOCUMENTATION TO SUBMIT TO THE NAUTICAL BEFORE THE AUDIT**

Centres are to present the following documentation a minimum of one month before for a pre-audit check:

- Instructor's manual for each course, including course timetable, lesson plans for each module and copies of PowerPoint presentations
- Student handouts and materials and relevant exercises
- Students manual for the above
- Licence to operate a centre from the relevant local or national authority
- Instructors CVs, photographs and DP Certificates
- A copy of each instructor's training programme signed off by an experience training DP instructor
- Copy of IMO train the trainer or teaching certificate and copy of the IMCA or NI logbook for each instructor
- Health and safety information
- Attendance list, feedback forms, and methods for assessing students
- Example of the certificates to be issued by the centre
- Administration procedures to cover registration/booking, logbook control etc.
- Management review policy
- Performance appraisal policy for instructors
- Complaints policy
- Control of documents policy.

If the documentation is not received in a timely manner the NI may cancel the arranged audit, with the resulting loss (travel/accommodation costs/etc.) borne by the training centre. To maintain high audit standards, the NI auditors need time to review documentation before arriving at the centre.

All documents are to be uploaded as per NI instruction.

## **11. PROVISIONAL ACCREDITATION**

Prior to the audit, a training provider may request provisional accreditation. This is restricted to selected courses and is given after submission of all the course documentation and instructor qualifications, provided they are of an acceptable standard. The maximum allowance is the delivery of two courses prior to the audit day, which requires approval in writing from the NI. This enables the course provider to advertise and supply courses pending the formal accreditation and test the systems at the centre.

If the accreditation is successful the provider will be accredited for three years, subject to the provider submitting an annual report.

Where an application for accreditation is unsuccessful, the provider will be told the reasons and invited to resolve the non-conformities. The NI aims to be supportive throughout this period.

## **12. WHAT WILL BE ASSESSED AND VALIDATED DURING THE AUDIT?**

Validation of originals of some of the documentation listed above in:

- Contents of a formal request for accreditation
- Documentation to submit to the NI prior to the audit, and
- Training Standard, Instruction manuals

Auditors will also assess/verify:

- The correct use of equipment, particularly in relation to simulator exercises
- Practical exercises and how they are conducted
- Record-keeping and administrative arrangements (logbook control, issuance of certificates of completion, control of documents etc.)
- Accommodation, lecture rooms, equipment and safety considerations
- Assessment methods and how results are used to monitor student understanding and thus instructor performance as well as trigger preventive/corrective actions in relation to course materials/content/delivery

- A formal student feedback system concerning the content and conduct of the course
- Maintenance arrangements and records, including a copy of the equipment maintenance certificate.

### **13. THE AUDIT PLAN**

In most instances the audit will proceed according to the following schedule:

- Pre-audit - all materials submitted to the NI by the training provider will be reviewed.
- Day 1 of audit - opening meeting; auditors split up with one assessing the administrative/record-keeping and facility side of the training centre and the second assessing the technical side; course delivery will be observed.
- Day 2 of audit - any items outstanding are assessed; course delivery will be observed; a closing meeting will be held to discuss the audit findings.
- Post-audit - all audit findings will be documented and discussed with the NI Accreditation Team; a decision will be made regarding the accreditation status of the training provider; this decision will be conveyed to the centre.
- Additional days will be required for centres seeking STR, Shuttle Tanker accreditations.

### **14. RESULTS OF ACCREDITATION**

The NI will write formally to award accreditation at three levels:

- Accredited: the centre will be accredited to deliver courses for three years and will be required to submit annual reports to the NI throughout this period
- Accredited subject to minor or major improvements:
  - Minor improvements: the centre must make minor improvements during which time the centre will usually be allowed to continue delivering courses. Depending on the nature of the improvements to be made, written and/or photographic evidence of the improvement may be all that is required by the NI from the centre. In certain instances a follow-up visit may be required by the auditor/s. Once the improvements have been completed and validated, the centre will be accredited to deliver courses for three years from the date the initial audit was carried out and will be required to submit annual reports to the NI throughout this period
  - Major improvements: Accredited on completion of significant improvements which must be confirmed by due dates; the centre must make significant improvements during which time the centre may have to suspend the delivery of courses. In most cases where significant improvements are required a follow-up audit will be required. This is at the expense of the training centre. Once the improvements are completed and validated, the centre will be accredited to deliver courses. However, a shorter period than the usual three years may be stipulated. During the period for which accreditation is granted the training provider will be required to submit annual reports to the NI.
- Failure: with reasons and invitation to re-submit.

### **15. WITHDRAWAL OF ACCREDITATION**

Accreditation may be cancelled or withdrawn for any of the following reasons:

- Failure to settle the accreditation/re-accreditation invoice within 90 days
- Failure to be re-accredited within three months of the expiry date of the existing accreditation (unless agreed with the NI)
- Bankruptcy/receivership or liquidation of the accredited training provider or their parent organisation
- Failure to notify the NI of significant changes to the management, training delivery or instructors
- Failure to attend a Regional Training Providers (RTP) meeting, where available, within a three-year period.
- Misrepresentation, misuse, abuse or misdemeanour relating to the accreditation by the accredited training provider
- Failure to comply with the NI's policies for accreditation and certification
- Failure to submit an annual report

- Engaging in any illegal activity
- End of partnership or joint-venture between two accredited organisations
- Outstanding invoices in relation to logbooks/books for over 90 days.

## **16. RECOGNITION AND CERTIFICATION**

On successful accreditation, the NI will issue a certificate to the provider with authorisation to add the NI's logo and the words *Accredited by the NI* to its course literature.

## **17. THE COST OF ASSESSMENT**

The NI will carry out the assessment at full cost recovery plus administrative overheads. Typical costs of an Accreditation or Re-accreditation audit are as follows, based on Induction and Simulator Courses. For additional courses, audit days are proportionately increased.

- Pre-audit review and assessment of documents. Half day each by two auditors.
- Auditing of Centre for Induction and Simulator Courses. Two days each by two auditors.
- Post-audit review, making of official report and dealing with non-conformities. Half day each by two auditors.
- Travel days for two auditors.
- Travel and Accommodation costs.
- Other incidentals (meals, transport, visa fee)
- Administrative Overheads, 15% on daily rates (others, at actual).

Further details are provided in the accreditation agreement.

## **18. WHEN A CENTRE CHANGES LOCATION OR SIMULATOR**

If a training centre changes location/premises, simulator or ownership it must notify the NI of that fact. A date will be arranged and a new audit will be carried out at the cost of the training centre.

## **19. SPOT AUDITS**

The NI retains the right to visit any accredited training centre to carry out a spot audit for the purpose of maintenance of Accreditation standards. The cost for such a spot audit will be borne by the training centre.

## **20. BRIBERY ACT 2010**

The NI, being a charity registered in the UK, is subject to the latest existing version of the UK Bribery Act. The penalties for committing a crime under the Act may include imprisonment, unlimited fine and the potential for the confiscation of property as well as disqualification of directors. It has a near-universal jurisdiction, allowing for the prosecution of an individual or company with links to the UK, regardless of where the crime occurred.

## **21. HARMONISATION OF STANDARDS**

The policy of the NI is:

1. To ensure that courses conducted by different establishments for the same purpose meet the same standards.
2. When blended learning or other techniques are used as a means of preparation or delivery, the programmes are harmonised with the course objectives.
3. When courses cover several different disciplines, the appropriate people with the required experience and qualifications are utilised for each section.

## **22. THE NAUTICAL INSTITUTE'S QUALITY STANDARDS AND AUDIT PROCEDURE**

The procedures in this Standard have been approved by the NI's Executive Board, which has delegated their detailed application to the NI's DP Training Executive Group (DPTEG). The Group is kept informed of DP accreditation activities and keeps the accreditation and certification process under review. DPTEG is maintained by an annual fee, which is paid by every accredited training centre in April of each year.



## ANNEX 3

# THE PROCESS FOR ACCREDITATION BY THE NAUTICAL INSTITUTE

ACCREDITATION AND CERTIFICATION SCHEME STANDARD

## **ANNEX 3 - TRAINING CENTRE ARRANGEMENTS**

### **1. TRAINING STANDARD**

Accreditation is given for both the Induction Course and the Simulator Course together. When a training centre applies for accreditation it must submit all required materials for both courses.

#### **1.1. INSTRUCTION MANUALS**

##### **INSTRUCTOR'S MANUAL**

Each course must be supported by an Instructor's manual. The purpose of this manual is to provide a means of tracking changes to the documentation used in delivering training, to provide a reference for all trainers at a particular centre to train to the same standard and to act as an induction tool when new instructors join the centre.

The Instructor's manual for each course should contain as a minimum:

- A statement of the centre's teaching methodology (for guidance see below)
- Course overview and purpose
- Course aims and objectives
- Course timetable with breakdown of time assigned for each module and coffee/lunch breaks
- Details of the simulator equipment used for the course including a plan of the simulator layout
- Materials and other equipment required for each course module
- Copies of slide presentations
- Copies of student handouts
- The model the centre uses for planning a simulator exercise (see below for an example)
- Lesson plans for each module and exercise (see below for an example) with the objectives to be achieved by the exercise stated
- Practical exercises (both student and instructor versions)
- Explanation of the centre's assessment system including master copies of the form/forms that will be used to provide written evidence of each student's performance on individual simulator exercises and for the course overall.

In most cases training organisations hold copyright of their training materials and prefer to have control of all manuals on site. The Nautical Institute (the NI) supports this approach and requires at least one controlled **master copy of the Instructor's manual** for each course taught should be maintained by the Centre Coordinator. This master copy may be kept electronically.

##### **STUDENT MANUAL**

The Student manual for each course should contain as a minimum:

- Course overview and purpose
- Course timetable
- Course aims, objectives and competencies
- Explanation of how they will be assessed
- Health and safety information for the particular centre
- Complaint/appeal procedure

Centres are encouraged to make some or all of the manual available to students digitally. At least one controlled **master copy of the Student manual** for each course taught should be maintained by the Centre Coordinator. This master copy may be kept electronically

It is suggested that the material given to students also contain examples of DP incidents which have occurred as well as an overview of the NI DP Operator certification process and information/links to relevant industry websites (IADC, ICS, IMCA, ISOA, OCIMF, IDPOA and STATOIL).

Note: Instructor and student's manuals shall be marked with the date and version number as part of quality the management system and document control (Annex 4).

## **2. TRAINING METHODOLOGY**

In preparing this guidance for NI accredited DP training centres the NI intends to promote a consistently high and verifiable standard of delivery across all centres and courses.

DP training is a complex undertaking. A student must not only acquire a great deal of knowledge but be able to translate that knowledge into physical responses in what sometimes may be very stressful conditions. In other words, DPOs must develop an attitude based on their knowledge that allows them to act appropriately in a given situation.

### **2.1. PREPARING YOUR TRAINING METHODOLOGY STATEMENT**

To enhance the likelihood of success in such a complex undertaking, the NI requires that training centres provide a written statement of the centre's training methodology. This requires the centre to develop a written statement explaining the system of methods and principles that they intend to follow as they plan, design, assess and evaluate the effectiveness of the training/learning that takes place at their centre.

As with any model course published by IMO, this Accreditation and Certification Scheme Standard needs to meet certain non-negotiables: the amount of teaching time required for each course; student/instructor/equipment ratios; the learning objectives for each course and standardised assessments. However, your choice of training methods depends on what fits your centre including your centre's educational philosophy, classroom demographic and mission statement and the teaching skills of your instructors.

This will possibly require some research and thought on the part of your centre. By the nature of simulator based training with adults there are certain choices that have more or less been made for your centre. The training you provide will most likely be *student-centred*, using *inquiry-based* and *cooperative* learning to varying degrees.

However, the framework in which these activities are carried out is still open to you. Your centre may choose to base your training on the universally known *Bloom's Taxonomy*. Or you might decide that the *SOLO* or *Fink's* taxonomies suit your particular centre better.

The nature of simulator training lends itself to *formative assessment*, as the instructor must continually gauge student reaction to the exercises he/she has prepared in order to continuously adapt them to the performance levels of the students. If your centre uses formative assessment, how does the centre document this and ensure objectivity across all the instructors? As all DP students are adults, what strategies does the centre employ to address the specific needs of adult learners? In addressing this question your instructors should become familiar with the term *andragogy*.

Below you will find brief descriptions of these terms with links to references where appropriate. You will also find a list of recommended reading and references.

This information is not exhaustive; if there are learning taxonomies, training methods etc. that your centre wishes to use that are not mentioned here, that is perfectly fine. That is why we ask that you make a written statement of what they are. This serves not only to inform the NI auditors who visit the centre but is valuable for the instructors who work at the centre.

## **2.2. IMPORTANT TERMS**

### **2.2.1. Student-centred learning**

While teachers are an authority figure in this model, teachers and students play an equally active role in the learning process. The teacher's primary role is to coach and facilitate student learning and overall comprehension of material. Student learning is measured through both formal and informal forms of assessment, including group projects, student portfolios, and class participation. Teaching and assessment are connected; student learning is continuously measured during teacher instruction.

### **2.2.2. Inquiry-based learning**

*Inquiry-based learning* is a teaching method that focuses on student investigation and hands-on learning. In this method, the teacher's primary role is that of a facilitator, providing guidance and

support for students through the learning process. *Inquiry-based learning* falls under the *student-centred approach*, in that students play an active and participatory role in their own learning process.

### **2.2.3. Cooperative learning**

*Cooperative Learning* refers to a method of teaching and classroom management that emphasises group work and a strong sense of community. This model fosters students' academic and social growth and includes teaching techniques such as reciprocal teaching. *Cooperative learning* falls under the *student-centred approach* because learners are placed in responsibility of their learning and development. This method focuses on the belief that students learn best when working with and learning from their peers.

### **2.2.4. Bloom's Taxonomy**

<http://www.nwlink.com/~donclark/hrd/bloom.html> explanation of Bloom's Taxonomy (also mentions SOLO Taxonomy) and provides links to reference materials

[https://classic.icc.edu/innovation/PDFS/assessmentEvaluation/RevisedBloomsChart\\_bloomsverbsmatrix.pdf](https://classic.icc.edu/innovation/PDFS/assessmentEvaluation/RevisedBloomsChart_bloomsverbsmatrix.pdf)

*Bloom's Taxonomy* underpins the classical knowledge, attitude, skills structure of learning method and evaluation and is one of the most widely used systems of its kind in education. It is a simple, clear and effective model, both for explanation and application of learning objectives, teaching and training methods, and the measurement of learning outcomes.

*Bloom's Taxonomy* model has three domains which may overlap:

- Cognitive domain (intellectual capability, i.e. knowledge, or 'think')
- Affective domain (feelings, emotions and behaviour, i.e. attitude, or 'feel')
- Psychomotor domain (manual and physical skills, i.e. skills, or 'do')

In each of the three domains *Bloom's Taxonomy* is based on the premise that the categories are ordered in degree of difficulty. An important premise of *Bloom's Taxonomy* is that each category (or level) must be mastered before progressing to the next. As such the categories within each domain are levels of learning development, and these levels increase in difficulty.

The simple matrix structure enables a checklist or template to be constructed for the design of learning programmes, training courses, lesson plans, etc. Effective learning should arguably cover all the levels of each of the domains, where relevant to the situation and the learner. The learner should benefit from development of knowledge and intellect (cognitive domain); attitude and beliefs (affective domain); and the ability to put physical and bodily skills into effect – to act (psychomotor domain).

This combines well with the structure of the NI DP scheme. The Induction Course must be passed initially and the task sections completed successfully before undertaking the Simulator Course. This then must be successfully completed before beginning ship-specific training and practice.

### **2.2.5. SOLO Taxonomy**

<http://www.johnbiggs.com.au/academic/solo-taxonomy/>

The Structure of the Observed Learning Outcome or *SOLO* is a means of classifying learning outcomes in terms of their complexity; as learning progresses it becomes more complex. This view enables the assessment of students' work in terms of its quality rather than according to how many elements are correct.

*SOLO taxonomy* comprises of the following:

- Prestructural - the student has missed the point and does not have any understanding
- Unistructural - one or a few aspects of the task are focused upon
- Multistructural - several unrelated aspects are focused upon
- Relational - the aspects are integrated to achieve an understanding as a whole

- Extended abstract - finally integrated understanding is used as a concept to generalise new areas of learning.

There is a diagram available at the associated link above to help illustrate the concept.

*SOLO* can be used not only in assessment, but in designing the curriculum in terms of the learning outcomes intended, which is helpful in implementing constructive alignment. In constructive alignment, we start with the outcomes we intend students to learn, and align teaching and assessment to those outcomes. The outcome statements contain a learning activity, a verb, that students need to perform to best achieve the outcome, such as “*apply* expectancy-value theory of motivation”, or “*explain* the concept of ...” etc.

The verb conveys what the relevant learning activities are that the students need to undertake in order to attain the intended learning outcome. Learning is constructed by what activities the students carry out; learning is about what they do, not about what teachers do. Likewise, assessment is about how well they achieve the intended outcomes, not about how well they report back what they have been told.

*SOLO Taxonomy* helps to map levels of understanding that can be built into the intended learning outcomes and to create the assessment criteria or rubrics. Constructive alignment can be used for individual courses, for degree programmes, and at the institutional level, for aligning all teaching to graduate attributes.

#### **2.2.6. Fink's Taxonomy**

[http://www.wcu.edu/WebFiles/PDFs/facultycenter\\_SignificantLearning.pdf](http://www.wcu.edu/WebFiles/PDFs/facultycenter_SignificantLearning.pdf)

This is an article by L. Dee Fink, the creator of the taxonomy

<http://www.psychologicalscience.org/index.php/publications/observer/2011/september-11/using-finks-taxonomy-in-course-design.html>

This is an article which explains how taxonomy was used to create a course.

Fink encourages instructors to create learning goals based on his taxonomy of significant learning rather than relying on a content-driven method of course design. Fink's approach switches the emphasis away from content toward the goals and skills instructors want their students to retain after the course is completed.

#### **2.2.7. Formative Assessment**

Formative assessment is a range of formal and informal assessment used by teachers during the learning process in order to modify teaching and learning activities to improve student attainment. It typically involves qualitative feedback (rather than scores), for both student and teacher, that focuses on the details of content and performance.

#### **2.2.8. Andragogy**

*Andragogy* is the term that refers to the methods or techniques used to teach adults.

<http://www.instructionaldesign.org/theories/andragogy.html>

A one page summary of *Andragogy*

[http://www.assetproject.info/learner\\_methodologies/before/characteristics.htm](http://www.assetproject.info/learner_methodologies/before/characteristics.htm)

a list of the characteristics of adult learners

[http://www.assetproject.info/learner\\_methodologies/during/strategies.htm](http://www.assetproject.info/learner_methodologies/during/strategies.htm)

same website but this page provides teaching strategies that work with adult learners

### **2.3. FURTHER READING**

As simulator training plays such an integral part in the NI DP training scheme, it is imperative that this training is as well planned and relevant as possible. Therefore, the NI recommends the following:

- A Simulation Instructor's Handbook: The Learning Game by Jillian Carson-Jackson Med MNI AFRIN, published by the NI ISBN 978 1 906915 16 2. This is a small, 68 page volume that is packed with useful information.
- Model Course 6.10 Train The Simulator Trainer and Assessor 2012 Edition, published by the IMO. This is a 142 page document that discusses technical aspects of teaching using simulators in the MET environment.
- *Bridge Resource Management, Simulation and Experiential Learning "A Loaded Gun"* by Captain George Sandberg USMS FNI, Director of Nautical Science Simulation, US Merchant Marine Academy, Kings Point, New York. Though it discusses BRM courses the principles are directly relevant to any type of simulator training.

It is noted that there is a misconception that experiential learning is free choice or learning by chance that focuses solely on the student and the role of the instructor is minimised or totally eliminated. The danger of teaching bad practice, unacceptable risk taking, developing overconfidence, destroying confidence and creation of “mis-educative experiences” are explained. The importance of the instructor in preventing undesired teaching results is discussed.

This article is available at:

<http://www.nialexisplatform.org/accreditation/dynamic-positioning/training-centres-area/>

## 2.4. EXAMPLE DOCUMENTS FROM TRAINING CENTRES

### EXAMPLE A – MODEL FOR DESIGNING AND DELIVERING DP SIMULATOR TRAINING EXERCISES DEVELOPED BY ONE DP TRAINING CENTRE

#### Set up of a training scenario using a simulator

- Scenario objectives
- Required knowledge and skills level (pre-requisites)
- Start information (environmental, traffic factors, etc.)
- Training material necessary (paper charts etc.)
- Briefing consisting of two parts:
  - Scenario objectives (SMART)<sup>1</sup>
  - Feedback criteria (how do we measure the participant obtained the correct level)
- Theoretical explanation (clearing up questions, reminders)
- Definition of the starting conditions (course, heading, speed, engines running etc.)
- Definition of roles and responsibilities in the bridge team
- Task preparation
- Actual run; all events must be connected to a scenario objective (all other are just diverting attention from the real goals of the course)
- Debriefing part; consisting of two parts
  - Feedback participant and/or peers on performance
  - Feedback of instructor, focusing on the scenario objectives, hand in hand with the competence checklist.

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<sup>1</sup> Specific – Measurable – Assignable – Realistic – Time-related

## **EXAMPLE B – LESSON PLAN**

### **DSV AIR DIVE GENERAL OBJECTIVES**

Perform drift and alert light and e-stop test. DP practice covering safe operation, communication and reporting during manoeuvring and static DP, operations to support diving, procedures inside and outside the 500m zone and bringing the vessel to the platform for dive operations. Create alert agreement

### **EXERCISE ENVIRONMENT**

<b>Area</b>	South China Sea Gulf of Thailand Open Sea Early morning to daylight, reduced visibility by rain			
<b>Wind</b>	4 to 6 knots/NE-SW	<b>Current</b>	1.5'/E-ESE	<b>Waves</b>
<b>Own vessel</b>	DSVDP2			
<b>Targets</b>	Platforms, wellheads and pipelines			
<b>Worksite</b>	DPCS oilfield			

### **DESCRIPTION**

All students will control a model vessel, performing diving operations on DP in DP2 compliant mode as per the alert agreement. They shall carry on the bridge watchkeeping following all the procedures for a safe operation and following the alert agreement once they are in position.

### **INSTRUCTOR'S GUIDELINES**

Issue each student with the Diving Exercise work book (consisting of exercise instructions, field drawing, charts, pilot and tide NP books, safe zone location, pre-DP checklist and DP setup settings and drift test recording form). Instructor to run through operation scenario and allocate vessel and job task to students (instructor would have loaded required vessel prior to starting the class; it will be outside the 500m when it starts). Instructor to run through safety plan, pre-DP checklist (drift test instructions are on the form) and communications protocol as contained in the student's course manual and the safety procedures to do the operation. The instructor assists with any questions. The students then start the exercise by moving into position and carrying out exercise as per the instructions. Time allocated is approx. 180 minutes, after which the instructor carries out questions and answer session (time allocated approx. 15 minutes), instructor asks students to rotate DPO position to the next student. The student moves the vessel to the next leg of the operation and repeats the procedure then advises the instructor. The exercise will require the full use of the communications (phone/VHF) and the alert lights and possibly the e-stops. Instructor to hold open discussion with students as a debrief during which time the instructor will raise observations he may have noted during the exercises with the recorded data. Evaluation forms to be completed for each student.

### **EVALUATION**

Instructors shall fill in the evaluation report for each console (vessel)

#### **Method of instruction**

Students on their own, instructor in simulator control room on the phone for all calls and to send equipment faults and environment changes to the consoles and record key points for the exercise.

#### **Resources to be used:**

DP NMS 6000 software and hardware -DP1 and DP2

set up and chart screen

3 1/2 hours for two students

Student reference:

Course material handouts, FMEA, charts 3963 and 66,

NP 203 and 30, UTM subsea and worksite diagrams and the Nav chart screen data loaded.

**EXAMPLE C: RECORDING STUDENT PERFORMANCE**

Summary of Simulation		
Team 1	Team 2	Team 3
Team Members	Team Members	Team Members
Wind:	Wind:	Wind:
Current:	Current:	Current:
Final Approach Heading:	Final Approach Heading:	Final Approach Heading:
500 M Checklist Completed:	500 M Checklist Completed:	500 M Checklist Completed:
Dive Checklist Complete:	Dive Checklist Complete:	Dive Checklist Complete:
Communications Check Completed:	Communications Check Completed:	Communications Check Completed:
DP Events Induced by Instructor	DP Events Induced by Instructor	DP Events Induced by Instructor

## EXAMPLE D – RECORDING STUDENT PERFORMANCE

<b>DP ADVANCED COMPENCE CHECKLIST</b>				Participant name: Date: Course:
NI Competence		Tax code	Checked	Comment:
<b>1. OPERATION OF A DP SYSTEM</b>				
1.1	Demonstrate an ability to set up and operate the DP system under the various control modes, and to carry out manual, mixed manual/automatic manoeuvres.	A		
1.2	Demonstrate the operation of position reference systems, sensors and peripheral equipment associated with the DP system.	A		
<b>2. DP OPERATION</b>				
2.1	Interpret vessel plans and specifications, capability diagrams and other data relevant to the planning and conduct of DP operations.	A		
2.2	Using vessel and other data assess the capability of the vessel to complete successfully and proposed operation.	A		
2.3	Carry out risk assessment exercise on proposed operations and determine the level of redundancy appropriate.	A		
2.4	Make appropriate contingency plans to cover any foreseeable system failure or operational requirement. Contingency planning to include appropriate “escape routes” for the vessel.	A		
2.5	Demonstrate compliance with appropriate procedures to be followed when approaching any work site and transferring from conventional vessel control to DP control.	A	N/A	
2.6	Demonstrate effective completion of Pre DP and other checklists.	A		
2.7	Demonstrate effective communication needed during DP operations and the testing procedures.	A		
2.8	Conduct vessel positioning manoeuvres and station keeping functions following operational plan and procedures.	A		
2.9	Organize DP watchkeeping procedures observing recognized safe working practices.	I	N/A	
2.10	Conduct appropriate watch handover procedures, completing appropriate checklists.	A	N/A	
2.11	Maintain the appropriate logbooks and records pertaining to DP operations.	A		
2.12	Evaluate the various information, warning and alarm messages communicated to the operator.	I		
2.13	Relate the content of the messages in 2.12 above to the actions necessary in relation to the DP operation.	I		

<b>3. EMERGENCY PROCEDURES</b>				
3.1	Recognise the conditions that will cause degraded operational status or emergency status.	K		
3.2	Recognise the warnings and alarms associated with catastrophic failure.	K		
3.3	Evaluate the various factors to be taken into account subsequent to any system failure and determine appropriate actions.	I		
3.4	Carry out procedures to stabilize the vessel position and heading subsequent to a variety of system failures and take appropriate decisions and actions relating to the continuance or abandonment of the operation.	I		

<b>Levels of Cognition</b>	<b>Instructor Name:</b>
<b>Level 1: Knowledge (K)</b> To remember to reproduce on basis of appropriate, previously learned information.	
<b>Level 2: Understanding (U)</b> To give meaning to new situations and/or new material by recollection and using necessary present information. To give evidence of insight in certain activities.	
<b>Level 3: Application (A)</b> To use previously acquired information in new and concrete situations to solve problem that have single or best answers.	
<b>Level 4: Integration (I)</b> To separate information into their component parts, to examine such information to develop divergent conclusions by identifying motives or causes, making inferences and/or finding evidence to support generalisations. To creatively apply prior knowledge and skills to produce a new or original whole. To judge the value of material based on personal values or opinions, resulting in an end product, with given purpose, without real right or wrong answers.	

**Instructor Name:**

**Date:**

**Sign:**

### **3. DP CLASSROOM REQUIREMENTS**

#### **FACILITIES**

##### **1. Accommodation and transport suitability**

Some training centres provide accommodation and transport for students. Where applicable, the NI requires the centre to provide evidence that it has given this information to students.

Some training centres include the hotel and transportation as part of the training package. This should be clearly stated in the company's agreement with students.

Where accommodation and transport are not part of the course package provided by the centre, no documentation related to it will be required. However, a clear booking system must be in place and be part of the administrative procedures.

##### **2. Infrastructure**

The training centre shall determine, provide and maintain the infrastructure needed to achieve conformity to the NI requirements. Infrastructure includes, as applicable:

- Buildings, workspace and associated utilities
- Process equipment (both hardware and software)
- Supporting services (such as transport, communication, health & safety)

##### **Site plan**

Documented site plans shall be in place and displayed in a common area, showing the facilities and rooms available and emergency exits.

#### **2.1 Healthy and safety**

##### **2.1.1 Ventilation**

Almost all DP equipment gives off heat, which can build up during the day and become quite oppressive for users, as well as being detrimental to the equipment.

For this reason, the scheme requires that the temperature of the classrooms should be between 18 - 24°C, with humidity between 40% and 60%. An air conditioning unit or fan which is able to control temperature and humidity is required.

##### **2.1.2 Lighting**

- Lighting should be designed for the tasks that individuals are carrying out within that environment
- Windows should be fitted with blinds to avoid glare for display screen users.

##### **2.1.2.1 Emergency lighting**

This is for when normal lighting fails and should be set up for escape routes so there would be effective evacuation of occupied buildings and to ensure particular activities continue. The emergency lights must be powered from a source independent of that supplying normal lighting. Emergency lighting must comply with local regulations and be tested and maintained periodically.

##### **2.1.3 Noise**

Poor acoustic conditions in the classroom increase the strain on instructors' voices as most would find it difficult to compete with high noise levels. Noise can disrupt students' concentration and attention. Sound levels should be kept to a minimum and comply with local regulations. Where sound is over 85 decibels, sound insulation, reverberation and indoor noise levels control will be required.

#### **2.1.4 Electrical safety**

- Sufficient electrical outlets should be available so that all equipment can be positioned and used safely
- The location of electrical equipment depends on the length of cables and the availability of sockets for telephones, TV aerials and power. The location of the equipment must not increase the risk of danger to the equipment or users. Regular visual checks of plugs, leads and other electrical equipment should be undertaken
- Good desk design should incorporate cable management and may be modular to allow flexible arrangement. Cables must be kept tight and as hidden as possible.

#### **2.1.5 Fire warning systems and exits**

- A fire alarm is required for evacuation and emergency purposes. Before classes start students should be notified about possible tests and how and where to proceed in an emergency.
- Gangways and emergency exits must be marked with proper signage and be kept clear/unobstructed at all times
- Appropriate fire-fighting and first aid equipment should be close to hand and clearly marked.

### **2.2 Classroom**

A suitable classroom is required with desks or tables and adjustable chairs.

- As a rule of thumb, each student should be allocated a minimum of  $2\text{m}^2$
- Every classroom should have a clock on the wall for exercises and exams
- Every classroom should have a white board and/or flip chart.

#### **2.2.1 Visual aids**

Charts with DP illustrations are required in the classroom and must be visible to students.

#### **2.2.2 Technical equipment**

- All DP centres should have the requisite equipment required in the document **NI DP Simulator/equipment specification (Annex 7)** for the courses they deliver
- Additional rooms may be used if the class is split into groups or for the Simulator Course equipment
- For the purpose of conducting the Simulator Course, the instructor should be in a separate room
- The main teaching room should be provided with either a whiteboard or an alternative writing area, such as a flip chart or multimedia facilities.

#### **2.2.3 Projection equipment**

A maximum of 1500 ANSI lumens is generally considered adequate for projection equipment in most classroom environments, except in the most extreme ambient lighting conditions. In bright daylight it is advisable to use window blinds rather than increase the brightness of the projector.

### **2.3 Furniture**

#### **2.3.1 Chairs, desks**

- The furniture in the classroom must be comfortably positioned with easy access to all equipment
- Classrooms are required to have chairs with adjustable seat heights and back positions. Students need to be able to sit at the recommended height with their eye level at the top of screens. For correct posture, the lower arms should be roughly horizontal when working, knees should fit comfortably under desks with thighs roughly horizontal and backs should be kept straight
- Desks should have enough space around for paper, books and other materials; space for more than one user at a time, and for the instructor to gain access
- Centres therefore need to make purchasing decisions based on a clear understanding of the teaching methods in use, how their students interact with their environment, and what the furniture is expected to do

- Desks and chairs shall be kept in good condition and have periodical maintenance with proper records kept
- The centre should undertake a risk assessment of the facilities.

### **2.3.2 Computer and workstations**

The NI does not recommend using the same computers/workstations for the simulator and the assessment systems as this may affect the simulator system stability. Where centres prefer using the same computers for both training and assessment, the centre will be required to have a regular schedule of maintenance for the DP system. Evidence of this maintenance might be required.

- Monitors should tilt and swivel to suit the requirements of individual users
- The top of the screen should be roughly at eye level
- Screens should be positioned to reduce reflection and glare from lights and windows, using blinds where necessary and should be adjustable for brightness and contrast as the lighting changes throughout the day
- Screens should be cleaned regularly
- Users should have the option of using the keyboard flat or tilted.

For the assessment system, the minimum IT system requirements are:

- Internet Explorer 7
- 233 MHz processor
- Windows XP Service Pack 2
- RAM: 64 MB for 32-bit Windows XP/Server 2003, 128 MB for 64-bit Windows XP/Server 2003.

#### **2.3.2.1 Computers and workstations for online assessment system**

The following is required:

- One computer/workstation per student (1:1 ratio)
- Individual workstations for each student or there to be at least 1 metre of distance between them
- Workstations and computers must follow the health and safety requirements stipulated above
- There must be internet connection for all computers.

## **2.4 Domestics**

Training centres are required to provide domestic facilities to students, such as toilets, a kitchen or access to refreshments.

### **2.4.1 Toilets**

There should be adequate toilets that are routinely cleaned and maintained. Cleaning and maintenance should be recorded.

### **2.4.2 Kitchen and refreshments**

It is recommended that the centre provides a kitchen or refreshment facility to students. Where there is a lack of space to provide a kitchen or refreshment facilities for students, it is recommended that external agreements are made with local shops.



## ANNEX 4

# ACCREDITATION ADMINISTRATION REQUIREMENTS

ACCREDITATION AND CERTIFICATION SCHEME STANDARD

## **ANNEX 4 - ACCREDITATION ADMINISTRATION REQUIREMENTS**

### **General**

- The centre shall have a licence document showing that it is legally eligible to operate as a training centre.
- Joint venture agreements between a training centre and satellite centres or two independent companies shall be required by The Nautical Institute (the NI) for analysis prior to the accreditation visit. No financial information is required by the NI.
- Each centre must have a stamp with that centre's name and logo to be used for stamping logbooks. DP centres that are in a joint venture must have the name and logo of both the centres on the one stamp. Centres that are operating as satellite centres must each have their own stamp.

### **1. COURSE BOOKING SYSTEM**

There should be a booking system procedure clearly documented, demonstrating all the booking phases and feedback to students before commencing the course.

Training centres are required to ask for the Certificate of Competence (CoC) of their students before accepting them into the Induction Course and DP scheme. An electronic copy of the STCW CoC for each student shall be kept in files for audits.

An out of date Certificate of Competency (CoC) does not stop students commencing the DP scheme. However, training centres should provide full guidance to these students as they may find difficulties in obtaining the sea service required by the scheme if they hold an invalid CoC.

The Certificate of Competence number should be noted and properly recorded by the centre in the student record as well as in the logbook provided to them.

The NI will require a copy of the Certificate of Competence when receiving their application to cross-check the information.

Officer trainees should present proof, such as a letter from the company employing them or their college, indicating that they are on STCW training before joining the Induction Course and should be instructed by the training centre that they are not able to undertake DP watchkeeping time until they hold a STCW Certificate of Competency.

Trainee DPOs or Officer trainees who have started the DP scheme after 1 January 2012 and do not follow the conditions above will have their courses or training invalidated by the NI.

### **Non-STCW students (those who do not fit into the STCW regulation, such as Ballast Control Operator, Barge Supervisor or Offshore Managers and/or other non-Certificate of Competence qualified operators):**

The NI understands that the Induction Course is sought by many people who do not have a Certificate of Competence and are outside the scope of STCW. Training centres accredited by the NI will be authorised to accept them into the Induction Course under the following conditions:

- The Induction Course has to be delivered with a new title such as 'DP awareness' and not Induction Course as it states in the NI DP scheme; the NI asks centres not to use any name for the new course that might create confusion or similarity with the DP scheme. Example: DP Familiarisation.
- The certificate for this course (DP Awareness) cannot have the logo of the NI on it.
- These students cannot obtain the NI DP logbook after the course.
- These students cannot do the NI online assessment after the DP Awareness Course as the assessment is only applicable for those who are part of the NI DP scheme.
- These students will not be considered in any instance as part of the NI DP scheme. Therefore, they cannot apply for a NI DP Certificate. In case they decide to obtain the STCW Certificate of Competence in future, they will have to take the Induction Course stipulated by The NI as part of the DP scheme.

They will have to start the DP training from the beginning and follow the training sequence set up in the NI Standard.

## **2. PROCESS AND PROCEDURES**

### **2.1. Communication**

Internal: Appropriate communication processes must be established within the centre to ensure timely and relevant exchange of information among instructors and between management and instructors.

External: The training centre is required to implement effective arrangements for communicating with students in relation to:

- a. Course information
- b. Enquiries, contracts or order handling, including amendments
- c. Customer feedback, including customer complaints.

General information to students must be properly documented and visible in a common area such as reception or kitchen facilities. For this purpose the centre is required to have a wall board where information can be visually and appropriately displayed.

## **3. HUMAN RESOURCES**

### **3.1. General**

The training centre shall have an organogram, showing department and personnel structure and roles where applicable.

CVs of instructors including photo ID and records of any training, education, skills and experience shall be documented and maintained by the centre administration.

### **3.2. Competence**

The centre shall have a system in place to:

- a. Determine the necessary competence for personnel performing the training
- b. Provide training or take other actions to satisfy these needs
- c. Evaluate the effectiveness of the actions taken
- d. Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality of the course

### **3.3. Appraisals**

The Centre shall put in place an appraisal system to assess staff skills and competence. Records of the implementation of this system shall be kept including actions taken for staff improvement.

## **4. FEEDBACK SYSTEM**

### **4.1. Customer focus**

Top management shall ensure that customer requirements are determined and met with the aim of enhancing customer satisfaction.

#### **4.1.1. Customer feedback system**

Feedback forms are intended to assess the general quality of the course, its content, teaching method, instructors, facilities and infrastructure, and the helpfulness/professionalism of staff. The feedback about instructors and related course information shall be used to nurture his/her annual appraisal and/or to improve course and teaching.

#### **4.2. Annual review**

The centre shall establish management reviews, monitoring and customer feedback systems to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality of the DP training scheme, including policies and objectives.

The review documents must include information on:

- a. Result of audits
- b. Customer feedback
- c. Process performance and equipment conformity
- d. Status of preventive and corrective actions

- e. Follow-up actions from previous management reviews
- f. Changes that could affect the quality management system
- g. Recommendations for improvement

The outputs expected from the reviews include:

- a. improvement of the effectiveness of the documentation and communication process;
- b. improvement of pass marks from students
- c. reduction in customer complaints

## **5. COMPLAINTS AND APPEALS**

The centre shall have documented processes and procedures in place to deal with complaints and appeals.

## **6. DOCUMENTATION CONTROL**

### **6.1. General**

- a. Company policies/staff handbook should be properly documented.
- b. Procedures must be documented, showing effective planning, operation and control of its processes. All documents, forms, teaching material and slides must have version and dates to be easily traceable and replaced when required. Documents such as attendance lists and exercises shall also have the name and signature of the instructor who is teaching the course.

### **6.2. Control of Documents**

#### **6.2.1. NI documents/ circulars and official messages**

All NI documents must be collected and available to staff at any time. The centre needs to be able to show that the NI requirements were put in place and applied in the training centre procedures.

#### **6.2.2. Documented procedures shall be established to define the controls needed:**

- a. to approve documents prior to issue
- b. to review and update as necessary and re-approve documents
- c. to ensure that changes and the current revision status of documents are identified
- d. to ensure that relevant versions of applicable documents are available at points of use
- e. to ensure that documents remain legible and readily identifiable
- f. to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

#### **6.2.3. Control of records**

Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records. Documents are required to be stored for the time determined by local regulations or at least for a period of 3 years from the date of the NI audit, whichever is longer.

## **7. EQUIPMENT MAINTENANCE RECORDS**

The training centre is required to maintain the DP equipment and systems (hardware and software) periodically according to the manufacturer's guidance. The maintenance shall be periodically reviewed by an authorised technician and documented accordingly. A copy of the maintenance contract and a record of the maintenance carried out must be available when the centre is audited.



## ANNEX 5

### ACCREDITATION OF SATELLITE CENTRES

ACCREDITATION AND CERTIFICATION SCHEME STANDARD

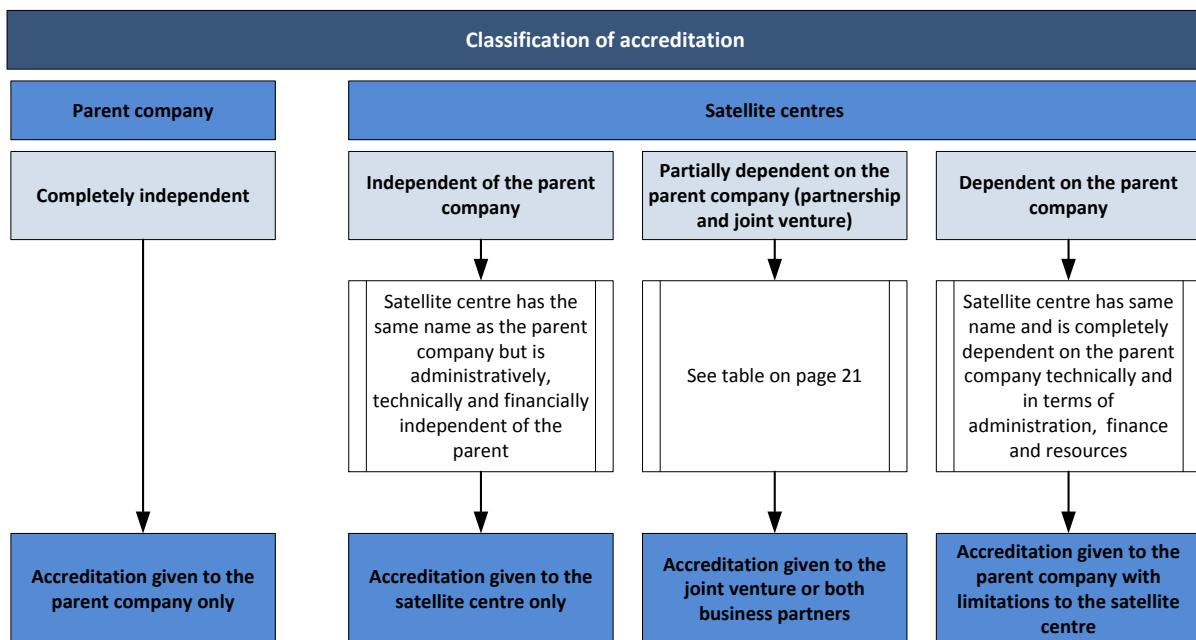
## ANNEX 5 - ACCREDITATION OF SATELLITE CENTRES

The Nautical Institute (the NI) recognises that DP training providers may extend their training provision to external training sites, utilising the facilities and equipment made available by a third party. Usually, through some mutual agreement, the facility provider and training provider arrange for a suite of DP equipment to enable the DP training provider to host courses at the venue on occasions agreed between the two parties. A DP training provider conducting courses in such a way is considered to be operating a *satellite centre*. This centre is subject to the same accreditation procedures and processes defined by the NI for any training provider. This document details the situations in which a separate assessment is needed, and those in which the satellite centre is covered by the assessment of the parent centre.

### 1. DEFINITION OF A SATELLITE CENTRE

The NI defines a satellite centre as an organisation which conducts its own training and assessment under the supervision of a larger approved centre, where the activities are conducted at one or more owned facilities located away from the primary site, and where staff follow the same practices and procedures as those of the approved centre.

### 2. CLASSIFICATION OF SATELLITE CENTRES



### 3. FACTORS CONSIDERED IN CLASSIFYING A SATELLITE CENTRE

The NI may take the following factors into consideration before classifying the centre subject to audit as being unique and independent, partnership/joint-venture or a dependent satellite centre:

- Local educational regulations
- Accountability and oversight of the business (liabilities and responsibilities)
- Personnel involved and their accountability
- Administration and management for the centre's operations.

### 4. INDEPENDENT AND DEPENDENT SATELLITE CENTRES

- a. If the oversight, management, accountability and operation of the satellite training centre and the user activities in the satellite facilities are INDEPENDENT of the parent company, then the satellite centre is subject to a full site visit by the DP auditors. Accreditation is given in the name of the satellite centre only and the annual DPTEG fee charged to the satellite centre.
- b. If the oversight, management, accountability and operations of the satellite training centre facilities are DEPENDENT upon the parent company and use its programmes, e.g. they share administration, mission, personnel, budget, DP equipment and technical material, then they are considered part of the accreditable parent unit. The satellite centre must be visited by at least one technical DP auditor,

and the fees will be added and charged to the parent company. If administrative materials and documents are kept in the parent company, the satellite centre must present evidence of the process to access and file these documents.

When the parent company is audited, it will be subject to audit of all items related to any satellite centre that it may have. This means that the number of days needed to run the accreditation visit may increase from two to five days, depending on the number of satellite centres.

The annual DPTEG fee will be payable whether the centre is a parent centre or a satellite centre.

If the separate facilities are located some distance apart, or the oversight, management and operation of the satellite facilities are not integral to the primary unit, then the separate facilities may be considered as separate and unique accreditations. In this case, The Nautical Institute (the NI) will issue the accreditation to each centre individually.

## **5. JOINT VENTURES, PARTNERSHIPS AND COLLABORATIONS TO OPERATE A SATELLITE CENTRE**

The NI defines a joint venture as an association or contractual business undertaking between two or more individuals or companies engaged in a solitary business enterprise for profit without actual partnership or incorporation.

Joint ventures are similar to a business partnership, with one key difference: a partnership generally involves an ongoing, long-term business relationship (over 10 years), whereas a joint venture is based on a single business transaction lasting from six months to nine years. Joint ventures may be distinct business units (a new business entity may be created for the joint venture) or collaborations between businesses.

If the NI has accredited a satellite centre as part of a joint venture, the accreditation is automatically withdrawn once the contract or agreement between the parties has been terminated.

The annual DPTEG fee will be charged to the joint venture-accredited satellite centre as well as to the fee charged to the parent centre.

The NI will consider issuing a partnership/joint venture accreditation when there is a combination of any of the items as example below:

Satellite Centres			
Partially dependent on the parent company; partnerships and joint ventures			
Item	Provided by Satellite/Parent company (Company A)	Provided by Business Partner (Company B)	Information
DP Instructor	X	X	
Teaching material	X	X	
Simulators	X	X	
Administrative resources	X	X	
Management / administration	X	X	
Oversight / accountability	X	X	
Building/facilities	X	X	
 The Nautical Institute considers the combination of any of these items as being a partnership or joint venture.			
 Accreditation given to both companies in partnership			

In the case of a partnership or joint venture, the accreditation will be given in the names of both companies. The NI will require:

- Stamp and Course Certificates in the name of both companies.
- Name and signature of instructors.
- Administrative procedures showing in detail the responsibilities of each company covering registration/booking, feedback, complaint and appeal policies, annual performance indicators, control of documents, management review etc.
- Administrative staff that are aware of the NI's DP certification requirements and display the knowledge needed to advise prospective or current students. Evidence of compliance with course pre-requisites should be retained by the satellite centre, as should records of relevant policy and procedure covering this process. These records will be considered for audit during the re-accreditation period.
- The satellite centre must retain all copies of the documents issued for and to the DP courses for future audit or re-accreditation purposes.

Failure to comply with any NI accreditation policy will result in suspension and possible termination of the accreditation of the partnership/joint venture.

There are some conditions and implications concerning mutual business partnerships or joint venture agreements, which may under certain circumstances compromise the standard set by the NI for accreditation. For example, if a facility upgrades its simulator station, the training provider must ensure that the upgraded specification meets or exceeds the minimum specification defined by the NI and that the NI is made aware of this upgrade before the change takes place.

The NI will therefore wish to ensure that the terms and conditions of the business partnership and/or joint venture agreement uphold as a minimum the NI accreditation requirements. In satisfying itself of this matter, the NI exercises no particular interest in any personal, financial or other type of sensitive data contained in such an agreement and accepts that this may be censored for commercial reasons.



## **ANNEX 6**

### **DP INSTRUCTOR REQUIREMENTS**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## ANNEX 6 - DP INSTRUCTOR REQUIREMENTS

1. **DP INSTRUCTOR CERTIFICATE:** A DP Certificate is required to become a DP instructor. New DP instructors require a DP Unlimited Certificate but are not required to revalidate.
2. **MINIMUM EXPERIENCE:** DP instructors must have a minimum of 365 sea time days on board a DP vessel as a certified DPO or equivalent as determined by The Nautical Institute (the NI) before becoming a DP instructor. 150 of the 365 sea time days must be completed within the last five years.

### **Equivalence matrix for DP instructors**

The following table outlines the equivalent requirements to become a DP instructor.

Sea time	365 sea time days on board a DP vessel	
Shuttle Tanker	25 offshore loading operations & 12 months "signed on"	20 offshore loading operations & 10 months "signed on" & successful completion of the Revalidation Course
Sea time & Revalidation	305 sea time days on board a DP vessel and successful completion of the Revalidation Course	

All instructors must hold an acceptable **teaching certificate**; the teaching certificate or qualification does not need to be the one that takes from one to two years to be completed. Rather, there are several courses in the market that deliver teaching courses within a few weeks. These courses shall focus on teaching methodology and assessment.

The **train the trainer of IMO 6.09** or **IMO 6.10** can be accepted by the NI as a teaching certificate.

3. All instructors must undertake a **training programme** and **pass the assessment made by the training centre**, following the table of competences to become a DP instructor. Training programme and table of competences are described further in this document.
4. The centres are allowed to have **instructors on a rotation or on-call basis**.
  - 4.1. Centres which have instructors on a rotation or on-call basis, must have a full-time DP teaching team leader (or supervisor), who will be responsible for updating and reviewing the material annually.
  - 4.2. The DP teaching team leader or supervisor must be full-time at the centre (or group in case of satellite centres) and also be responsible for all other instructors and their continuing training development. He or she is responsible for the daily management of the DP training course and delivering or supervising the delivery of DP training at the facility.
  - 4.3. Meetings should be held and documented twice a year with all the instructors to review the course performance, align instructors with course content and update them as to new standards and industry requirements. The minutes of such meetings will be required as evidence during the NI audits.
5. Training centres are allowed to use instructors from another centre; however the instructors must be NI approved, meet the requirements based on the items 1, 2, 3 and 4 above and should have experience on the existing simulator at the centre.
6. All training centres must develop and put in place a proper annual appraisal (annual performance assessment) for instructors, which shall be recorded in writing.
  - 6.1. The annual appraisal of all DP instructors must be done not only by the feedback form from students, but also by the teaching team leader. This appraisal should consist of watching the instructor during the lectures, noting instructor attendance at conferences or seminars, courses and training, competences or any other feature that shows continuous professional development. Appraisal can

be done by third parties external to the centre who are able to assess the teaching methodology and instructor's skill.

7. **Grandfather clause for instructors:** Training centres that have had their DP instructors approved before 2008 under the 'grandfather clause' will have their instructor's approval reviewed on a case by case basis. The NI may continue their approvals based on employment implications. However, the 'grandfather clause' has been removed from the current scheme.
8. **Time for Instructor Training:** DP instructor training must be completed within four years of the training commencement.
9. **Informing the NI of Training Commencement:** It is not mandatory to inform the NI once a Training Centre commences training a new instructor. The NI is to be informed once the training programme is completed and an approval letter is to be requested. Training Centres must ensure they train a person who also complies with all requirements to be an instructor as laid down in the current Accreditation Standard. The NI will reject any application if it does not fulfil all the requirements. For this reason, the NI recommends that training centres to send the initial documentation about the new trainee instructor once he/she commences the training for initial document verification. So the centre reduces the risk of having any further rejection.

Note: Only Training instructor is authorised to sign the NI DP logbooks and certificates during the training programme.

10. **New instructors or change of DP instructors:** Training centres that do not report a change of instructor to the NI or use an instructor that has not been approved by the NI will have their accreditation cancelled, pending full audit. If a centre does not meet all the requirements for instructors, it may also have their accreditation cancelled, pending full audit.

## 11. TRAINING PROGRAMME FOR NEW INSTRUCTORS

- 11.1. The new trainee instructor must be a participant in the Induction and Simulator Courses for a period of one week each. These are attendance and revision courses. It is expected that they will study and revise (if necessary) the DP training manual before delivering any of the courses.
- 11.2. The new trainee instructor will thereafter participate in the delivery of an Induction Course as a co-instructor (under the supervision of an experienced *training instructor*) and a Simulator Course, (under the supervision of an experienced *training instructor*). Each course will be of one week's duration.
- 11.3. The new trainee instructor must then be internally assessed by the *training instructor* for the four courses (two attendance courses and the two delivered as co-instructors), based on the table of competences and methodologies for those courses.
- 11.4. After the above assessment, the new trainee instructor shall deliver one Simulator Course independently, under the observation of the *training instructor*. This will be for one week and shall also be assessed by the *training instructor*.
- 11.5. The *training instructor* is considered a person who has been previously approved by the NI and has taught a minimum of four Induction Courses and four Simulator Courses within one year before being able to undertake the training of a new trainee instructor.
- 11.6. The training of the new trainee instructor shall be undertaken in the same simulator equipment installed at the training centre where the trainee instructor will eventually conduct courses.
- 11.7. The new trainee instructor shall be re-assessed by the *training instructor* and if approved, then the training centre must send the new trainee instructor's documents to the NI for approval. The documents are:

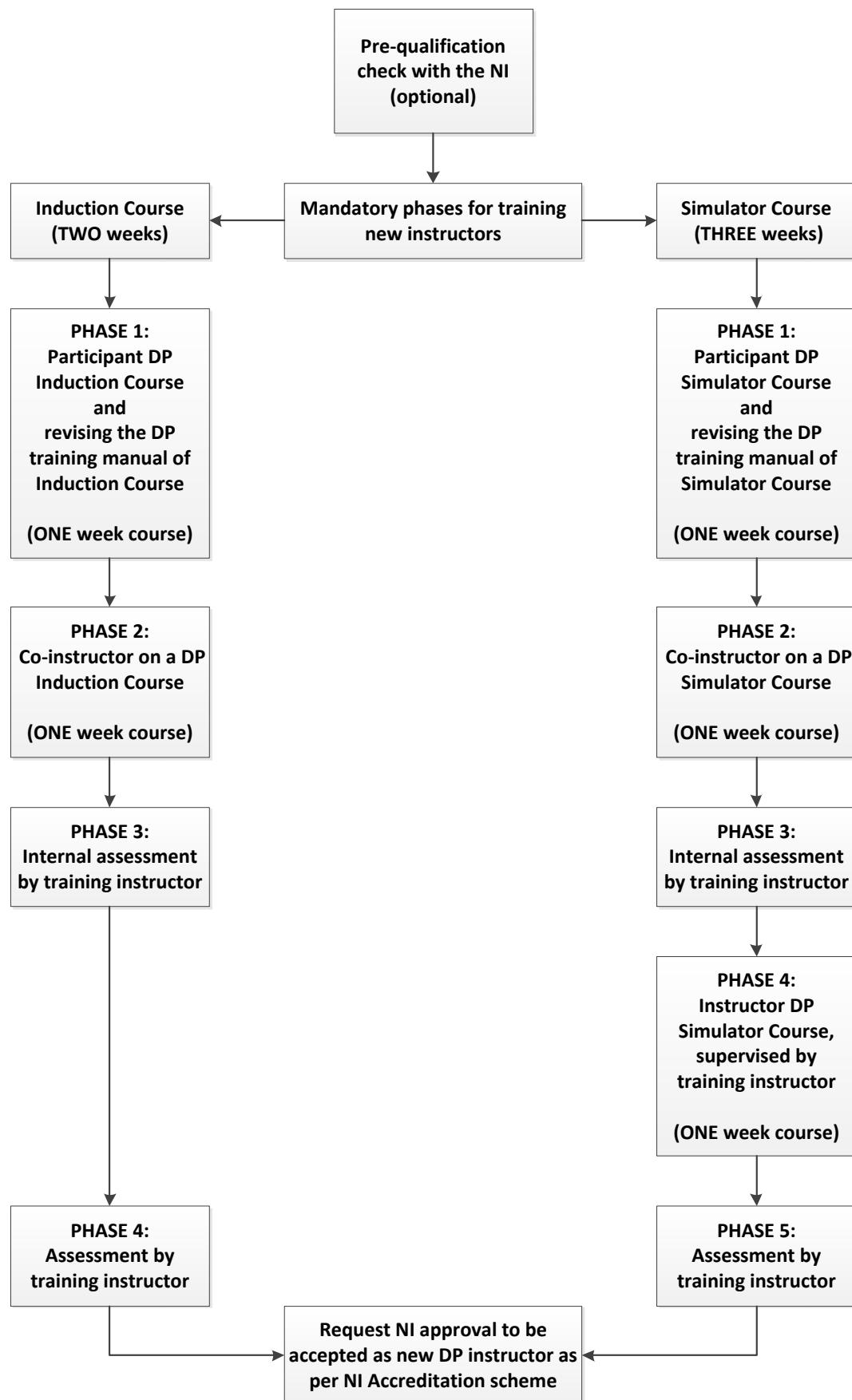
- Copy of NI DP Certificate
- Copy of instructor's CV
- Copy of teaching certificate
- Copy of NI DP logbook with evidence of the above minimum experience requirements from the date of NI DP Certificate issuance
- Copy of each instructor's training programme properly dated and signed off by training centre/training DP instructor.

**11.8.** A written record of all the above training with dates that each phase is completed and signatures of *training instructors* who oversee the trainee instructor should be kept for each instructor. The records shall be sent to the NI for approval. Please see an example template below.

In the case of a **new training centre**, which does not have a *training instructor* in place to deliver the training programme, two means of training new DP instructors are possible: the new trainee instructor may be sent to another NI accredited training centre to complete the training and to be assessed, following all the conditions/items above, or a new centre may hire an already NI approved DP instructor to come to the new centre and carry out the training programme above.

If the new trainee instructor has been already trained by another training centre, the new instructor will be required to provide evidence of the training programme taken in the previous centre. This shall be sent to the NI as evidence and for final approval. If the new trainee instructor cannot show evidence of being previously trained by another training centre, he/she will be required to undertake the training programme in the new centre.

## TRAINING PROGRAMME PHASES



## COMPETENCY FRAMEWORK

No instructor should teach a DP course accredited by the NI until they have completed that course as a student. A new instructor should complete a particular DP course at least once in order to become familiar with the course content and the equipment used.

Subsequently, new instructors will deliver all elements of the shore-based courses under supervision. They should teach any element at least once under supervision. The rate at which new material is covered should be based on the instructor's competence, agreed with the supervising instructor/instructors.

### Specification of minimum standard of competence for DP instructors

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<b>General</b>			
Nautical Institute training scheme	<ol style="list-style-type: none"> <li>1. Knowledge of NI DP training scheme.</li> <li>2. Structure of scheme.</li> <li>3. Knowledge of requirements and guidelines.</li> <li>4. Knowledge of certification requirements</li> </ol>	Examination and assessment of evidence from approved training programme	General understanding of NI training scheme
Training centre procedures/quality management	Knowledge and understanding of individual training centres procedures and quality management systems		Follows procedures and demonstrates general understanding of quality management procedures
Training centre training materials/documentation	<ol style="list-style-type: none"> <li>1. Knowledge of centre training materials and documentation</li> <li>2. Ability to use training materials</li> </ol>		Competent delivery of training materials
Training centre equipment	Ability to set up and operate centre equipment		Sets up DP equipment Operates and demonstrates use of equipment

Induction Course			
DP principles	Ability to effectively communicate relevant course aims and objectives	Observation of competent delivery	Competent delivery of subject matter and training materials
Elements of DP system	Ability to effectively communicate relevant course aims and objectives		
Practical operation of DP system	Ability to effectively communicate relevant course aims and objectives		
Position reference/monitoring systems	Ability to effectively communicate relevant course aims and objectives		
Environmental sensors	Ability to effectively communicate relevant		

	course aims and objectives		
Power generation and supply	Ability to effectively communicate relevant course aims and objectives		
DP operations	Ability to effectively communicate relevant course aims and objectives		

Simulator Course			
Delivery of additional theory and review materials	Ability to effectively communicate relevant course aims and objectives	Observation of competent delivery	Competent delivery of subject matter and training materials
Equipment/simulator set up	Ability to set up and operate effectively centre equipment		Sets up simulation scenarios
Exercise set up/briefing	Transmits relevant information to students		Communication is clear concise and acknowledged
Delivery of exercise outcomes	1. Knowledge of planning, conduct and execution of DP operations 2. Knowledge of common DP operational faults 3. Knowledge of DP procedures 4. Knowledge of various types of DP emergency		Competent delivery/facilitation of scenario exercises
Debrief exercises	Transmits relevant information to students		1. Identifies that exercise conforms with accepted procedures 2. Effectively debriefs exercise

**TRAINING PROGRAMME AND ASSESSMENT TABLE FOR NEW INSTRUCTORS**

(To be recorded and sent to the NI)

## **INDUCTION COURSE**

### **TRAINING PROGRAMME TABLE FOR NEW INSTRUCTORS**

Name of Trainee Instructor:

Name of Training Instructor:

Name of Training Centre:

<b>PHASE 1</b>	<b>TRAINEE INSTRUCTOR AS PARTICIPANT IN INDUCTION COURSE</b>	<b>dd/mm/yy</b>	<b>Instructors Signature</b>	<b>Remarks</b>
<b>PHASE 2</b>	<b>TRAINEE INSTRUCTOR AS CO-INSTRUCTOR ON A DP INDUCTION COURSE</b>			
Competence	Knowledge, Understanding and Proficiency	dd/mm/yy	Signature	Remarks
GENERAL				
Nautical Institute training scheme	1. Knowledge of NI DP training scheme 2. Structure of scheme 3. Knowledge of requirements and guidelines 4. Knowledge of certification requirements			
Training centre procedures / quality management	Knowledge and understanding of individual training centres procedures and quality management system			
Training centre training materials / documentation	1. Knowledge of centre training materials and documentation 2. Ability to use training materials			
Training centre equipment	Ability to set up and operate centre equipment			
INDUCTION COURSE		dd/mm/yy	Signature	Remarks
DP Principles	Ability to effectively communicate relevant course aims and objectives			
Elements of DP system	Ability to effectively communicate relevant course aims and objectives			
Practical Operation of DP system	Ability to effectively communicate relevant course aims and objectives			
Position reference / monitoring systems	Ability to effectively communicate relevant course aims and objectives			
Environmental sensors	Ability to effectively communicate relevant course aims and objectives			
Power generation and supply	Ability to effectively communicate relevant course aims and objectives			
DP Operations	Ability to effectively communicate relevant course aims and objectives			

<b>PHASE 3</b>				
Internal Assessments and Comments of Phase 1 and 2 by Training Instructor				
Date:	Training Instructor's Signature:			

**TRAINING PROGRAMME AND ASSESSMENT TABLE FOR NEW INSTRUCTORS**  
**(To be recorded and sent to the NI)**

## **SIMULATOR COURSE**

### **TRAINING PROGRAMME TABLE FOR NEW INSTRUCTORS**

Name of Trainee Instructor:

Name of Training Instructor:

Name of Training Centre:

<b>PHASE 1</b>	<b>Date from (DD/MM/YY)</b>	<b>Date to (DD/MM/YY)</b>	<b>Training Instructor Signature</b>
Trainee Instructor as participant in the Simulator Course			

		<b>PHASE 2</b>	<b>PHASE 4</b>	
<b>Competence</b>	<b>Knowledge, Understanding and Proficiency</b>	Trainee instructor as Co Instructor on a DP Simulator Course (under supervision of Training Instructor)	dd/mm/yy	Training Instructor signature
Delivery of additional theory and review materials	Ability to effectively communicate relevant course aims and objectives			
Equipment/Simulator Set-Up	Ability to set up and operate effectively centre equipment			
Exercise set up/ briefing	Transmits relevant information to students			
Delivery of exercises outcomes	1. Knowledge of planning, conduct and execution of DP Operations			
	2. Knowledge of common DP operational faults			
	3. Knowledge of DP procedures			
	Knowledge of various types of DP emergency			
Debrief Exercises	Transmits relevant information to students			
<b>PHASE 3</b>				
Internal Assessment / Comments of Phase 1 and 2 by Training Instructor				

Date:	Training Instructor Signature:

<b>PHASE 5</b>	
Internal Assessment /Comments of Phase 4 by Training Instructor	
Date:	Training Instructor Signature:



## **ANNEX 7**

### **NI DP SIMULATOR/EQUIPMENT SPECIFICATIONS**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## ANNEX 7 - NI DP SIMULATOR/EQUIPMENT SPECIFICATIONS

**Notes:** This specification details the requirement for all simulators and should be read in conjunction with the notes below, any item that does not have the note "(Required by January 2020)" will be *recommended* for all simulators.

In January 2020, these items will become mandatory for all simulators.

Centres that are due for accreditation before 2020 must have the new simulator specification in place or will need to undergo a new re-accreditation audit again in 2020 after upgrading their existing simulator to meet the 2020 specifications.

Where it is not possible to upgrade a Centre's existing equipment to meet the January 2020 specifications, on a case by case basis, the NI may grant exemptions to January 2020 specification items for existing installations only.

<b>Simulator Class A</b>		
<b>Item</b>	<b>NI Requirement</b>	<b>Link to Failure Mode Checklist or Course Content</b>
<b>Table 1 Physical realism:</b>		
101A	Equipment and consoles are to be installed, mounted, and arranged in a ship-like manner.	
102A	The DP Simulator shall be installed, where necessary information sources, such as indicators, displays, alarm panels, control panels and communication systems are also installed.	
<b>As a minimum the following DP related equipment shall be included in the simulator:</b>		
103A	A DP Class 2 Control System, that simulates a system installed on at least one vessel certified by a class society. Emulated systems are not permitted.	
104A	A realistic Human Machine Interface ("DP desk") is required. A set of 2-axis joystick and turn control knob (or 3-axis joystick) is mandatory.	Induction 74 except for realistic HMI & Simulation 2.5.
105A	Manual control; Single thruster levers and thruster indicators for each thruster or group of thrusters, available for user on the simulator.	
106A	Emergency stop controls for all thrusters located close to DP Simulator consoles. The Emergency Stop device does not need to be integrated to the simulator.	Failure Mode 1
107A	The thruster control mode, i.e. DP, Manual, should be selectable by	

	a simple device located close to DP Simulator consoles.	
108A	The DP system shall include the following operational modes: - Manual Mode (Joystick control of Surge, Sway & Yaw); - Mixed Manual /Automatic Mode (Automatic control of Yaw with Joystick control of Surge & Sway, and Automatic control of Surge & Sway with Joystick/knob control of Yaw); - Automatic Mode (Automatic control of Surge, Sway & Yaw) - Track Follow Mode (Automatic control of Surge, Sway & Yaw while following a predetermined track via waypoints) - Follow-Target Mode (e.g. ROV Follow where the vessel maintains position relative to a moving target, usually an underwater vehicle) DP systems where automatic control of Surge & Sway is selected jointly rather than independently, meet the requirements of this item.	Induction 78 & Simulation 1.1.
109A	A minimum thruster arrangement set shall be made available, with at least the minimum below: - Tunnel thruster & azimuth thruster or main propulsion with rudder. Other thruster arrangements, that meet the same needs, are acceptable. The Thruster arrangement Set shall reflect Ship Model, DP Operation and DP system class, so Training Provider should have the stated above depending on the simulated Operation being carried out during the training. This requirement can be met by using multiple simulated vessels.	Failure Mode 11
110A	A DP Power generation view showing status, load, power on buses, generators and bus ties (The view can be a presentation within the DP system.)	Simulator Course 1.2
111A	At least 3 independent position-reference systems with operator interface, based on different principles.	Failure Mode 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39. Note that as only DGNSS & HPR are absolute requirements (Item 117A), some failure modes for the reference systems may not be possible as the specification requires only a total of three references to be fitted.
112A	An Electronic Field Chart System, or ECDIS / ECS system adapted to represent it. Paper plans can be used but cannot replace the Electronic Field Chart required above. The Field shall represent realistic offshore structures. (Required by January 2020.)	Failure Mode 24, 26. Operators have to know where objects are to determine fault. Possibly by ECDIS or visual or both.
113A	A DP status alert system ("traffic lights") for e.g. alerting dive	

	control or drill floor etc., in four colours, or the colours used for specific operation guidelines: Green, White/Blue, Yellow and Red. The lights may not be integrated on the simulator system, but clearly visible to the instructor during the exercise. (White/Blue light required by January 2020.)	
114A	An Alarm printer for DP or an electronic means of recording the same information.	
115A	Specification sheets for each own ship for the purpose of planning DP operations. (These are to include vessel dimensions, particulars related to installed power, thruster characteristics /power and information relating to any thruster modes the vessel may have.)	Simulator Course 2.2
116A	Vessel plans for the purpose of planning DP operations. (Plans need to at least show location of pre-programmed rotation points, reference system locations and thruster locations.) Also, Capability diagrams for each own ship. (These can either be on paper or generated electronically by the DP system.)	Simulation 2.1 & 2.2
<b>As a minimum the following inputs to the DP system shall be simulated:</b>		
117A	3 independent position-reference systems based on different principles, where one shall be a DGNSS and one shall be HPR. The other PRS may be adapted to the operation being simulated. (DGNSS, Differential Global Navigation Satellite System). ROV Follow in Item 108A, Item 607A and Item 608A make HPR a required reference system. (HPR required by January 2020.)	Failure Mode 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39. Note that as only DGNSS & HPR are absolute requirements, some failure modes for the reference systems may not be possible as the specification requires only a total of three references to be fitted.
118A	3 independent vertical reference sensors (VRS) (Required by January 2020.)	Failure Mode 21, 22
119A	3 independent heading sensors , e.g. gyro compasses	Failure Mode 17, 18, 19, 20
120A	2 independent wind sensors	Failure Mode 12, 13, 14, 15, 16
121A	1 draught sensor or manual draught input	
122A	Thruster status and feedback	Failure Mode 1, 2, 3, 4, 5, 6, 7, 8, 9. Simulator Course 3.4 (b)
123A	Generator load, generator circuit breakers and bus ties	Failure Mode 40, 41, 42, 43, 44, 45, 46, 47. Simulator Course 2.2
<b>As a minimum the following bridge related equipment shall be included in the simulator:</b>		
124A	A radio to simulate external and Internal radio communications (according to the operation being simulated) - An internal communication system, e.g. a talk-back system to areas such as	Simulation 2.7 but no requirement for multiple means of communication.

	ROV control and telephone, to areas such as ECR (engine control room) and other areas of the vessel.	
125A	At least one digital gyro repeater	
126A	At least one Radar/ARPA display/unit (Automatic Radar Plotting Aid) with the functionality of a type approved system	
127A	ECDIS (Electronic Chart Display and Information System) or ENC (Electronic Navigation Chart). This item is in addition to an ECDIS/ENC that may be used to comply with Item 112A. (Required by January 2020.)	Simulator Course 2.2
128A	Water depth indicator (may be emulated)	
129A	Speed log repeater showing speed through the water and in addition speed and distance over ground (may be emulated)	
130A	At least one wind indicator showing wind- direction and speed (may be emulated)	
131A	Sound panel or interface to issue navigational sounds according to the International Collision Regulation Rules (may be emulated)	
132A	Instrument for indication of navigational lights (may be emulated)	
133A	Control system for fire detection, fire alarm and lifeboat alarm (may be emulated)	
134A	AIS (Automatic Identification System) (may be emulated) AIS displayed on ECDIS or ECS is sufficient to meet this requirement.	
<b>Table 2</b>	<b>Behavioural realism:</b>	
201A	Position-reference systems should preferably be based on real equipment for the operator interface. Emulated systems may be accepted if similar interface, functionality and indications are present.	
202A	Monitoring of positioning reference systems on the DP system shall include realistic alarms for any typical fault or failure condition.	Failure Mode 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39. Simulator Course 1.2
203A	Position-reference systems shall provide new position data with a realistic refresh rate and accuracy.	
204A	Monitoring of sensors on the DP system, shall include realistic alarms for any typical fault or failure condition.	Failure Mode 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22. Simulator Course 2.12 and 3.2
205A	The dynamic positioning control systems shall perform a	

	consequence analysis of the ability to maintain position after worst case failures. An alarm shall be initiated, in regular intervals, when a failure will cause loss of position in the prevailing weather conditions. User shall be able to activate and de-activate the consequence analysis.	
206A	The simulation of own ship shall be based on a mathematical model with six degrees of freedom.	This is based on DP principles.
207A	The model shall realistically simulate own ship hydrodynamics in open water conditions, including the effects of wind forces, wave forces, tidal stream and currents.	Linked to item 206A
208A	The simulator shall simulate the event of a contact/collision with other vessels/structures with a clear indication that contact has occurred. This need not be automatic. Manual freezing of the visuals, by the instructor, is sufficient to meet this requirement. (Required by January 2020.)	
209A	The simulator/simulators of the training provider should have the possibility to simulate at least three DP operations, such as: Supply, ROV survey, cable lay, pipe lay, trenching, rock dumping, dive support, drilling, offshore loading operations and other offshore operations, where required, using the DP modes contained on 108A and the adequate Thruster Arrangement Set, according to DP Operation, Ship Model and DP Class being simulated, as stated on 109A.	Failure Mode 10, 55
210A	The radar simulation equipment shall be capable of modelling weather, shadow sectors, spurious echoes and other propagation effects, and generate coastlines , navigational buoys and search and rescue transponders in addition to vessels and installations in the operational area (type approved characteristics)	
211A	The electronic field chart or ECDIS/ECS adapted (Item 112A), shall include platforms and subsea equipment and present a real time update of vessel position and heading with an outline of the vessel to scale.	Failure Mode 24, 26 and Simulator Course 2.2. Operators have to know where objects are to determine fault. Possibly by ECDIS or visuals or both.
212A	The simulator shall provide an own ship engine and thruster sound, reflecting the power output appropriate to vessel type.	
213A	The simulator shall be able to work either in Geographic (latitude/longitude) or in UTM (Universal Transverse Mercator)	

	coordinates.	
<b>Table 3</b>	<b>Operating environment:</b>	
<b>Target ships:</b>		
301A	The simulator must display other appropriate target vessels.	
302A	The simulator must display at least 2 different installations of different types. The level of perception/details shall be high to allow for realistic operations at close range. The platforms should be illuminated at night.	
303A	The target ships shall be equipped with navigational-lights, shapes and sound signals, according to the International Regulations for Preventing Collisions at Sea. Each ship should have an aspect recognizable at a distance of six nautical miles in clear weather. A ship under way shall provide relevant bow and stern wave.	
<b>Outside view:</b>		
304A	The simulator shall provide a realistic visual scenario by day, dusk or by night, including variable meteorological visibility, changing in time. It shall be possible to create a range of visual conditions, from dense fog to clear.	Failure Mode 24, 26. Operators have to know where objects are to determine fault. Possibly by ECDIS or visuals or both.
305A	The visual system and/or a motion platform shall replicate movements of ships according to six degrees of freedom.	
306A	The visual system shall present all navigational marks according to charts used.	
307A	The visual system shall present the outside world by a view around the horizon (360 degrees by panning the view). The horizontal field of view may be obtained by a view of at least 210 degrees, where the rest of the horizon may be panned (to move the "camera"). In case the simulator is configured to fit a "rear view" only, is acceptable a 180 degree of visualization.	
308A	Simulated sea state visualization shall align with any changes in simulated weather. (Required by January 2020.)	
<b>Outside sound:</b>		
309A	The simulator shall be capable of providing environmental sound (e.g. wind) according to conditions simulated.	

<b>Navigated waters/Environmental forces:</b>		
310A	The navigated waters shall include a current pattern, changeable in time, according to the charts used. Tidal current shall be reflected. Manual current entry, by the instructor, is sufficient to meet this requirement.	Failure Mode 50, 51, 52
311A	The simulation shall include the depth according to charts used, reflecting water level according to tidal water situation.	Failure Mode 32
312A	The simulator shall provide waves, variable in direction, period and height.	Failure mode 50, 51, 52, 53, 54
313A	The simulator shall provide wind force, variable in direction and speed.	Failure Mode 50, 51, 52, 53, 54. Simulator Course 1.2
314A	Environmental forces, current, waves and wind, shall be possible to enter both as an immediate change, and with a change time. In addition it shall be possible to back (counter-clockwise) or to veer (clockwise) the environmental forces.	Failure Mode 50, 51, 52, 53, 54. Simulator Course 1.2
Table 4	<b>Simulator control:</b>	
401A	The simulator shall include suitable instructor facilities where exercises are normally controlled. This facility shall be separated from where the students are conducting the exercise/operation.	
402A	The instructor shall, by any method, be able to monitor key parameters of the exercise for debriefing and analysis purposes. If trends are not available, instructor shall provide means to capture key parameters.	
403A	The simulator shall include possibilities to set the exercise to any position in the playback and be able to continue the exercise from the set time. Note: When real equipment is interfaced, e.g. the DP system, it is accepted that the real equipment may not be able to jump in time and place without allowing time to reset data and build new model.	
<b>As a minimum the following equipment shall be included in the simulator control:</b>		
404A	DP computer facility for the instructor to monitor and control the operation of the simulator. ( Including items in Tables 5 & 6)	To set student's simulator
405A	DP computer facility for instructor to monitor the DP system settings independently – to check DP settings used by the students.	To set student's simulator
406A	Slave monitors for each DP Operator station in the bridge	To set student's simulator

	(Remotely Visualization software through network may be accepted. Video splitters of the DP system monitors may also be used. Cameras would not be acceptable.) To be able to observe the students use of the DP Operator stations.	
407A	Monitoring panel for thruster emergency-stop if not integrated automatically in the simulator, or means to clearly identify the command.	Failure Mode 1
408A	Monitoring panel for DP status alert switch (traffic light) or an indication of alert switch status by other means in the simulator control.	Linked to 113A where instructor will be able to see what action student has undertaken.
409A	Communication equipment as on the bridge (as per GMDSS Area 1). Here a VHF DSC is required. (Required by January 2020.)	Simulator Course 2.7
410A	Video and sound monitoring equipment. Where the simulator & simulator control are in adjoining rooms, 1 way glass may be used in lieu of video monitoring equipment. (Hear and see student's reactions /discussions )	
411A	Slave screen to monitor the horizontal field of view, preferably with a means to pan 360 degrees.	
<b>Table 5</b>	<b>Failure modes:</b>	
501A	The instructor shall be able to introduce faults for the DP system. Faults and their characteristics should be able to be defined in advance or introduced/changed while the simulation is running. Fault characteristics shall be appropriate for the system/device/operation being modelled.	Simulation 2.12, 3.2 and 3.4.
<b>For the simulated signals (thrusters, generators, sensors, PRS etc.), the following failure modes shall be included in the simulator control and applied as appropriate:</b>		
502A	Random noise, e.g. for PRS (position-reference system); jumps in metres in two axis (latitude and longitude)	Failure Mode 25,28,29,37. Simulator Course 3.4 (e)
503A	Drift, with drift speed and limit, e.g. for PRS; drift in two axis (latitude and longitude)	Failure Mode 17, 18. Simulator Course 3.4 (e)
504A	Bias, as appropriate	Failure Mode 12, 13, 14, 15, 21, 30, 33
505A	Oscillation, with value and period	If that is related to delay and interference, so it would be related to items 5, 6, 29 and 30 in the Failure Mode
506A	Freeze signal to existing value	Failure Mode 6, 23. Simulator Course 3.4
507A	Stop of signal	Failure Mode 16,19,20,22,24,25,26,27,28,31,34,36,39. Simulator

		Course 3.4 (c) (d)
508A	Fixed value, (feedback and set point), e.g. thruster runaway with setting in percent	Failure Mode 1, 2, 3, 5. Simulator Course 3.4 (a)
<b>Table 6 Other simulator control functions:</b>		
<b>Simulator control - Power management:</b>		
601A	The simulator shall be able to start and stop individual generators.	Failure Mode 40, 41, 42, 43, 44, 45, 46, 47. Simulator Course 1.2
602A	The simulator shall be able to open/close generator circuit breakers and bus ties.	Failure Mode 40, 41, 45, 46. Simulator Course 1.2
603A	The simulator shall be able to define unspecified external load (e.g. drilling load) on individual power buses.	Simulator Course 1.2
<b>Simulator control - External forces:</b>		
604A	Where appropriate for the DP operation being simulated, the simulator shall be able to introduce external forces, specified per requirement, e.g.: Force, direction in degrees , setting for constant direction true or relative, point of attack (Surge and Sway).	Failure Mode 56
<b>Simulator control - Position-reference systems:</b>		
605A	Transponder coordinates for any position reference system, (i.e. laser reflector, hydro acoustic transponder, radar-based transponder), should be possible to enter either as an absolute coordinate or relative to the vessel.	
606A	Hydro acoustic systems shall be possible to be operated in LBL (Long Baseline) or SSBL (Super Short Baseline)/ USBL (Ultra Short Baseline) – as appropriate for the hydro acoustics system and operation being simulated.	
607A	It shall be possible to simulate mobile or fixed hydro acoustic transponders, where appropriate for the intended DP operation. (Mobile transponder is required for ROV Follow specified in item 108A.)	Linked to 608A and Failure Mode 10
608A	The simulator control shall have a function to simulate an ROV or similar, by moving mobile hydro acoustic transponder(s). The simulator shall be capable of simulating at least 1 mobile transponder at any given time. (Mobile transponder is required for ROV Follow specified in 108A.)	Failure Mode 10
<b>Table 7 Shuttle tanker specific requirements:</b>		
701A	If the simulator contains a Shuttle Tanker model, it shall be able to visually present at least three different loading facilities for offshore	

	loading, where an FPSO (floating production, storage and off-loading vessel) in tandem loading shall be one of them. The behaviour of such model shall reflect realistically a tanker with the special view of manoeuvring during approach and loading.	
702A	For a Shuttle Tanker one external force shall be integrated to a hawser tension sensor.	Failure Mode 56
703A	For a Shuttle Tanker in tandem loading at least one absolute and one relative position-reference systems shall be simulated.	Failure Mode 38, 39

### **Simulator Class B**

Item	NI Requirement	Link to Failure Mode Checklist or Course Content
<b>Table 1</b>	<b>Physical realism:</b>	
101B	The DP Simulator shall be installed, where necessary information sources, such as indicators, displays, alarm panels, control panels and communication systems are also installed.	
<b>The following DP related equipment shall at least be included in the simulator:</b>		
102B	A DP Class 2 Control System, from a manufacturer with a system installed on at least one vessel certified by a class society. (Emulated systems are permitted if they meet the requirements of this Standard and resemble a real system fitted to a vessel.)	
103B	A realistic Human Machine Interface ("DP desk") is required. A set of 2-axis joystick and turn control knob (or 3-axis joystick) is mandatory.	Induction 74 except for realistic HMI & Simulation 2.5.
104B	Emergency stop controls for all thrusters located close to DP Simulator consoles. The Emergency Stop device does not need to be integrated to the simulator.	Failure Mode 1
105B	The DP system shall include the following operational modes: - Manual Mode (Joystick control of Surge, Sway & Yaw); - Mixed Manual /Automatic Mode (Automatic control of Yaw with Joystick control of Surge & Sway, and Automatic control of Surge & Sway with Joystick/knob control of Yaw); - Automatic Mode (Automatic control of Surge, Sway & Yaw) - Track Follow Mode (Automatic control of Surge, Sway & Yaw while following a predetermined track via waypoints) - Follow-Target Mode (e.g. ROV Follow where the vessel maintains position relative to a moving target, usually an	Induction 78 & Simulation 1.1.

	underwater vehicle) DP systems where automatic control of Surge & Sway is selected jointly rather than independently, meet the requirements of this item.	
106B	A minimum thruster arrangement set shall be made available, with at least the minimum below: - Tunnel thruster & azimuth thruster or main propulsion with rudder. Other thruster arrangements, that meet the same needs, are acceptable. The Thruster arrangement Set shall reflect Ship Model, DP Operation and DP system class, so Training Provider should have the stated above depending on the simulated Operation being carried out during the training. This requirement can be met by using multiple simulated vessels.	Failure Mode 11
107B	A DP Power generation view showing status, load, power on buses, generators and bus ties (The view can be a presentation within the DP system.)	Simulator Course 1.2
108B	An Electronic Field Chart System, or ECDIS / ECS system adapted to represent it. Paper plans can be used but cannot replace the Electronic Field Chart required above. The Field shall represent realistic offshore structures. (Required by January 2020.)	Failure Mode 24, 26. Operators have to know where objects are to determine fault. Possibly by ECDIS or visual or both.
109B	A DP status alert system ("traffic lights") for e.g. alerting dive control or drill floor etc., in four colours, or the colours used for specific operation guidelines: Green, White/Blue, Yellow and Red. The lights may not be integrated on the simulator system, but clearly visible to the instructor during the exercise. (White/Blue light required by January 2020.)	
110B	An Alarm printer for DP or an electronic means of recording the same information.	
111B	Specification sheets for each own ship for the purpose of planning DP operations. (These are to include vessel dimensions, particulars related to installed power, thruster characteristics /power and information relating to any thruster modes the vessel may have.)	Simulator Course 2.2
112B	Vessel plans for the purpose of planning DP operations. (Plans need to at least show location of pre-programmed rotation points, reference system locations and thruster locations.) Also, Capability diagrams for each own ship. (These can either be on paper or	Simulation 2.1 & 2.2

	generated electronically by the DP system.)	
<b>As a minimum the following inputs to the DP system shall be simulated:</b>		
113B	3 independent position-reference systems based on different principles, where one shall be a DGNSS and one shall be HPR. The other PRS may be adapted to the operation being simulated. (DGNSS, Differential Global Navigation Satellite System). ROV Follow in Item 105B, Item 607B and Item 608B make HPR a required reference system. (HPR required by January 2020.)	Failure Mode 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39. Note that as only DGNSS & HPR are absolute requirements, some failure modes for the reference systems may not be possible as the specification requires only a total of three references to be fitted.
114B	3 independent vertical reference sensors (VRS) (Required by January 2020.)	Failure Mode 21, 22
115B	3 independent heading sensors , e.g. gyro compasses	Failure Mode 17,18, 19, 20
116B	2 independent wind sensors	Failure Mode 12, 13, 14, 15, 16
117B	1 draught sensor or manual draught input	
118B	Thruster status and feedback	Failure Mode 1, 2, 3, 4, 5, 6, 7, 8, 9. Simulator Course 3.4 (b)
119B	Generator load, generator circuit breakers and bus ties	Failure Mode 40, 41, 42, 43, 44, 45, 46, 47. Simulator Course 2.2
<b>As a minimum the following bridge related equipment shall be included in the simulator:</b>		
120B	A radio to simulate external and Internal radio communications (according to the operation being simulated) - An internal communication system, e.g. a talk-back system to areas such as ROV control and telephone, to areas such as ECR (engine control room) and other areas of the vessel.	Simulation 2.7 but no requirement for multiple means of communication.
<b>Table 2</b>	<b>Behavioural realism:</b>	
201B	Monitoring of positioning reference systems on the DP system shall include realistic alarms for any typical fault or failure condition.	Failure Mode 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39. Simulator Course 1.2
202B	Position-reference systems shall provide new position data with a realistic refresh rate and accuracy.	
203B	Monitoring of sensors on the DP system, shall include realistic alarms for any typical fault or failure condition.	Failure Mode 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22. Simulator Course 2.12 and 3.2
204B	The dynamic positioning control systems shall perform a consequence analysis of the ability to maintain position after worst case failures. An alarm shall be initiated, in regular intervals, when a failure will cause loss of position in the prevailing weather conditions. User shall be able to activate and de-activate the consequence analysis.	

205B	The simulation of own ship shall be based on a mathematical model with 6 degrees of freedom.	This is based on DP principles.
206B	The model shall realistically simulate own ship hydrodynamics in open water conditions, including the effects of wind forces, wave forces, tidal stream and currents.	Linked to item 205B
207B	The simulator shall simulate the event of a contact/collision with other vessels/structures with a clear indication that contact has occurred. This need not be automatic. Manual freezing of the visuals, by the instructor, is sufficient to meet this requirement. (Required by January 2020.)	
208B	The simulator/simulators of the training provider should have the possibility to simulate at least three DP operations, such as: Supply, ROV survey, cable lay, pipe lay, trenching, rock dumping, dive support, drilling, offshore loading operations and other offshore operations, where required, using the DP modes contained on 105B and the adequate Thruster Arrangement Set, according to DP Operation, Ship Model and DP Class being simulated, as stated on 106B.	Failure Mode 10, 55
209B	The electronic field chart or ECDIS/ECS adapted (Item 108B), shall include platforms and subsea equipment and present a real time update of vessel position and heading with an outline of the vessel to scale.	
210B	The simulator shall be able to work either in Geographic (latitude/longitude) or in UTM (Universal Transverse Mercator) coordinates.	
<b>Table 3</b>	<b>Operating environment:</b>	
<b>Target ships:</b>		
301B	The simulator must display other appropriate target vessels.	
302B	The simulator must display at least 2 different installations of different types. The level of perception/details shall be high to allow for realistic operations at close range. The platforms should be illuminated at night. (ITEM RECOMMENDED)	
303B	The target ships shall be equipped with navigational-lights, according to the International Regulations for Preventing Collisions at Sea. (ITEM RECOMMENDED)	
<b>Outside view:</b>		

304B	The simulator shall provide a realistic visual scenario by day, dusk or by night, including variable meteorological visibility, changing in time. It shall be possible to create a range of visual conditions, from dense fog to clear.	Failure Mode 24, 26. Operators have to know where objects are to determine fault. Possibly by ECDIS or visuals or both.
305B	For Class B, a visual system is required to increase realism and learning outcome. A visual system for Class B shall have a horizontal field of view of a single visual channel. Horizontally, the visual system for Class B shall be able to be panned 360 degrees.	
306B	Simulated sea state visualization shall align with any changes in simulated weather. This need not be automatic. Manual entry of sea state parameters, by the instructor, is sufficient to meet this requirement. (Required by January 2020.)	
<b>Environmental conditions:</b>		
307B	The navigated waters shall include a current pattern (speed and direction) that can be manually entered by the instructor.	Failure Mode 50, 51, 52
309B	The simulator shall provide waves, variable in direction, period and height.	Failure mode 50, 51, 52, 53, 54
310B	The simulator shall provide wind force, variable in direction and speed.	Failure Mode 50, 51, 52, 53, 54. Simulator Course 1.2
311B	Environmental forces, current, waves and wind, shall be possible to enter both as an immediate change, and with a change time. In addition it shall be possible to back (counter-clockwise) or to veer (clockwise) the environmental forces.	Failure Mode 50, 51, 52, 53, 54. Simulator Course 1.2
<b>Table 4 Simulator control:</b>		
401B	The simulator shall include suitable instructor facilities where exercises are normally controlled. This facility shall be separated from where the students are conducting the exercise/operation.	
402B	The instructor shall, by any method, be able to monitor key parameters of the exercise for debriefing and analysis purposes. If trends are not available, instructor shall provide means to capture key parameters.	
<b>As a minimum the following equipment shall be included in the simulator control:</b>		
403B	DP computer facility for the instructor to monitor and control the operation of the simulator. ( Including items in Tables 5 & 6)	To set student's simulator

404B	DP computer facility for instructor to monitor the DP system settings independently – to check DP settings used by the students.	To set student's simulator
405B	Slave monitors for each DP Operator station in the bridge (Remotely Visualization software through network may be accepted. Video splitters of the DP system monitors may also be used. Cameras would not be acceptable.) To be able to observe the students use of the DP Operator stations.	To set student's simulator
406B	Monitoring panel for thruster emergency-stop if not integrated automatically in the simulator, or means to clearly identify the command.	Failure Mode 1
407B	Monitoring panel for DP status alert switch (traffic light) or an indication of alert switch status by other means in the simulator control.	Linked to 109B where instructor will be able to see what action student has undertaken.
408B	Video and sound monitoring equipment. Where the simulator & simulator control are in adjoining rooms, 1 way glass may be used in lieu of video monitoring equipment. (Hear and see student's reactions/discussions)	
409B	Slave screen to monitor the horizontal field of view, preferably with a means to pan 360 degrees.	
<b>Table 5</b>	<b>Failure modes:</b>	
501B	The instructor shall be able to introduce faults for the DP system. Faults and their characteristics should be able to be defined in advance or introduced/changed while the simulation is running. Fault characteristics shall be appropriate for the system/device/operation being modelled.	Simulation 2.12, 3.2 and 3.4.
<b>For the simulated signals (thrusters, generators, sensors, PRS etc.), the following failure modes shall be included in the simulator control and applied as appropriate:</b>		
502B	Random noise, e.g. for PRS (position-reference system); jumps in metres in two axis (latitude and longitude)	Failure Mode 25,28,29,37. Simulator Course 3.4 (e)
503B	Drift, with drift speed and limit, e.g. for PRS; drift in two axis (latitude and longitude)	Failure Mode 17, 18. Simulator Course 3.4 (e)
504B	Bias, as appropriate	Failure Mode 12, 13, 14, 15, 21, 30, 33
505B	Oscillation, with value and period	If that is related to delay and interference, so it would be related to items 5, 6, 29 and 30 in the Failure Mode

506B	Freeze signal to existing value	Failure Mode 6, 23. Simulator Course 3.4
507B	Stop of signal	Failure Mode 16,19,20,22,24,25,26,27,28,31,34,36,39. Simulator Course 3.4 (c) (d)
508B	Fixed value, (feedback and set point), e.g. thruster runaway with setting in percent	Failure Mode 1, 2, 3, 5. Simulator Course 3.4 (a)
<b>Table 6 Other simulator control functions:</b>		
<b>Simulator control - Power management:</b>		
601B	The simulator shall be able to start and stop individual generators.	Failure Mode 40, 41, 42, 43, 44, 45, 46, 47. Simulator Course 1.2
602B	The simulator shall be able to open/close generator circuit breakers and bus ties.	Failure Mode 40, 41, 45, 46. Simulator Course 1.2
603B	The simulator shall be able to define unspecified external load (e.g. drilling load) on individual power buses.	Simulator Course 1.2
<b>Simulator control - External forces:</b>		
604B	Where appropriate for the DP operation being simulated, the simulator shall be able to introduce external forces, specified per requirement, e.g.: Force, direction in degrees , setting for constant direction true or relative, point of attack (Surge and Sway).	Failure Mode 56
<b>Simulator control - Position-reference systems:</b>		
605B	Transponder coordinates for any position reference system, (i.e. laser reflector, hydro acoustic transponder, radar-based transponder), should be possible to enter either as an absolute coordinate or relative to the vessel. (ITEM RECOMMENDED)	
606B	The simulator shall be able to carry out hydro acoustic position reference system operations.	
607B	It shall be possible to simulate mobile or fixed hydro acoustic transponders, where appropriate for the intended DP operation. (Mobile transponder is required for ROV Follow specified in item 105B.)	Linked to 608B and Failure Mode 10
608B	The simulator control shall have a function to simulate an ROV or similar, by moving mobile hydro acoustic transponder(s). The simulator shall be capable of simulating at least 1 mobile transponder at any given time. (Mobile transponder is required for ROV Follow specified in 105B.)	Failure Mode 10

<b>Table 7</b>	<b>Shuttle tanker specific requirements:</b>	
701B	If the simulator contains a Shuttle Tanker model, it shall be able to visually present at least three different loading facilities for offshore loading, where an FPSO (floating production, storage and off-loading vessel) in tandem loading shall be one of them. The behaviour of such model shall reflect realistically a tanker with the special view of manoeuvring during approach and loading.	
702B	For a Shuttle Tanker one external force shall be integrated to a hawser tension sensor.	Failure Mode 56
703B	For a Shuttle Tanker in tandem loading at least one absolute and one relative position-reference systems shall be simulated.	Failure Mode 38, 39
<b>Simulator Class C</b>		
Item	NI Requirement	Link to Failure Mode Checklist or Course Content
<b>Table 1</b>	<b>Physical realism:</b>	
<b>The following DP related equipment shall be included in the simulator:</b>		
101C	A DP Class 1 Control System, from a manufacturer with a system installed on at least one vessel certified by a class society. (Emulated systems are permitted if they meet the requirements of this Standard and resemble a real system fitted to a vessel.)	
102C	A realistic Human Machine Interface ("DP desk") is required. A set of 2-axis joystick and turn control knob (or 3-axis joystick) is mandatory.	Induction 74 except for realistic HMI & Simulation 2.5.
103C	The DP system shall include the following operational modes: - Manual Mode (Joystick control of Surge, Sway & Yaw); - Mixed Manual /Automatic Mode (Automatic control of Yaw with Joystick control of Surge & Sway, and Automatic control of Surge & Sway with Joystick/knob control of Yaw); - Automatic Mode (Automatic control of Surge, Sway & Yaw) - Track Follow Mode (Automatic control of Surge, Sway & Yaw while following a predetermined track via waypoints) - Follow-Target Mode (e.g. ROV Follow where the vessel maintains position relative to a moving target, usually an underwater vehicle) DP systems where automatic control of Surge & Sway is selected jointly rather than independently, meet the requirements of this item.	Induction 78
104C	A minimum thruster arrangement set shall be made available, with	

	at least the minimum below: - Tunnel thruster & azimuth thruster or main propulsion with rudder. Other thruster arrangements, that meet the same needs, are acceptable. The Thruster arrangement Set shall reflect Ship Model, DP Operation and DP system class, so Training Provider should have the stated above depending on the simulated Operation being carried out during the training. This requirement can be met by using multiple simulated vessels.	
105C	A DP Power generation view showing status, load, power on buses, generators and bus ties (The view can be a presentation within the DP system.)	
<b>The following inputs to the DP system shall be simulated:</b>		
106C	Three independent position-reference systems based on different principles, where one shall be a DGNSS and one shall be HPR. The other PRS may be adapted to the operation being simulated. (DGNSS, Differential Global Navigation Satellite System). ROV Follow in Item 103C makes HPR a required reference system. (HPR required by January 2020.)	
107C	Three independent vertical reference sensors (VRS) (Required by January 2020.)	
108C	Three independent heading sensors , e.g. gyro compasses	
109C	Two independent wind sensors	
111C	Thruster status and feedback	
112C	Generator load, generator circuit breakers and bus ties	
<b>Table 2 Behavioural realism:</b>		
201C	Monitoring of positioning reference systems on the DP system shall include realistic alarms for any typical fault or failure condition.	
202C	Position-reference systems shall provide new position data with a realistic refresh rate and accuracy.	
203C	Monitoring of sensors on the DP system, shall include realistic alarms for any typical fault or failure condition.	
204C	The simulation of own ship shall be based on a mathematical model with six degrees of freedom.	This is based on DP principles.
205C	The model shall realistically simulate own ship hydrodynamics in open water conditions, including the effects of wind forces, wave forces, tidal stream and currents.	Linked to item 204
<b>Table 3 Operating environment:</b>		

<b>Navigated waters/Environmental forces:</b>		
301C	The simulator shall provide wind force, direction and speed.	
302C	The Class C (DP) Simulator shall be able to set wind and current (direction and speed).	



## **ANNEX 8**

### **FAILURE MODE CHECKLIST**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## ANNEX 8 - FAILURE MODE CHECKLIST

**The Nautical Institute  
DP Simulator Course  
Failure Modes checklist**

Course dates: \_\_\_\_\_  
 From: \_\_\_\_\_  
 To: \_\_\_\_\_  
 Instructor: \_\_\_\_\_

No.	FAILURE MODE (Thrusters)	CORRECTIVE ACTION	COMPLETED	EXERCISE No.
1	Most useful thruster fails to 100% pitch/rpm. (Feedback indicates 100%)	Detect fault. Emergency stop Thruster. (Deselection of thruster does not stop thrust.)		
2	Most useful thruster feedback indicates 100% pitch/rpm but thruster is working normally.	Detect fault. Is heading or position changing? Emergency stop thruster if required. (Deselection of thruster does not stop thrust.) DP should continue to operate thruster, stop operation and move to safe location and check thruster.		
3	Most useful thruster fails to 0% pitch/rpm	Consider vessel capability after loss of thruster. Take action as required.		
4	Operator deselects thruster for engineering purposes (request from E/R) engineer trips another (critical) thruster.	Detect mistake. Inform engine room. Determine effect of the loss of this thruster has on vessel capability.		
5	Thruster having setpoint or feedback error. The magnitude of the error can be set to either cause a thruster alarm or be set so that the error is below alarm limits and only detectable by DPO observation of setpoint/feedback data.	Detect fault. Consider vessel capability. Have thruster checked and take corrective action as required. ( Non alarm event might not be noticed by DPOs)  The DPO must monitor the thruster setpoint / feedback and understand the information.		
6	Freeze a thruster (setpoint) after the vessel has settled on position and heading. (If a good model has built up there may be no alarm until weather conditions change or a move is input.)	Detect fault. (There may be no alarm if weather conditions are constant and the current model is built up.)		
7	Present a situation where thruster/thrusters down for maintenance. Vessel has sufficient remaining thrusters to hold position and complete the task assigned. However, when ½ blackout occurs, there will be insufficient thrusters online to maintain position control. (Vessel does not have redundancy with thruster/thrusters down.)	Project should not progress until adequate thrusters are available.		

8	Any of the thrusters down for maintenance.	Consider effect of thruster loss on vessel capability.		
9	Downline, umbilical, cargo hose, etc., fouls a thruster causing it to fail.	Consider vessel capability after loss of thruster. If required, alter operational status to reflect loss of thruster.		
10	ROV power failure while underneath vessel. ROV has sufficient tether out to reach surface and has positive buoyancy. Vessel may be secured to bottom by a pipe, cable or umbilical.	Shutdown thrusters or move vessel (as required) to prevent ROV contacting thrusters. Give consideration to DP operation and redundancy while doing so. (Was umbilical length considered during planning of operation? Does ROV have positive or negative buoyancy?)		
11	Thrusters in fixed azimuth mode in light weather conditions. Increase environmental loads to the point where vessel will not maintain position in fixed mode.	Thrusters should be switched to free slew as required to prevent loss of position.		
No.	FAILURE MODE (Sensors)	CORRECTIVE ACTION	COMPLETED	EXERCISE No.
12	Wind sensor shielded by platform and then sees extra wind (15 knots) after vessel move. (Wind increase can vary.)	Position vessel at a distance from platform such that excursion caused by extra wind will not cause a collision. (Be aware that wind sensor is not registering actual wind.)		
13	Wind sensor sees at extra wind (50 knots) for a short period due to helicopter arrival.	Deselect wind sensor before helicopter arrival. Reselect after departure. Note some DP systems will just reject the wind from the system, this is a problem if the wind is from a storm front.		
14	False high wind reading registering in DP system (in period when real wind is less than 5 knots) but not on anemometer direct readouts.	Ascertain real order of magnitude of wind, deselect wind sensors, and monitor any vessel movement and correction.		
15	Anemometer fouled (possibly by halyard). Gives fixed wind direction and speed error.	Determine cause of fault. Initiate action to have fault corrected.		
16	Single Anemometer Failure.	Initiate repairs. Check remaining anemometer/anemometers for quality of data to determine if operation can continue.		
17	Selected Gyro drifting slowly three Gyros online.	Investigate gyro error. (If all three gyros are selected, voting should eliminate faulty gyro.) Consider effect on vessel operational status.		
18	Selected Gyro drifting slowly two Gyros online.	Investigate gyro error. Attempt to determine which gyro is in error. (If difference becomes too large and faulty gyro cannot be determined, consideration must be given to stopping DP operation.)		
19	Single Gyro Failure	Consider effect on redundancy. Initiate repairs. Check		

		remaining Gyro/Gyros.		
20	Fail gyros (dependant on number selected) to cause position dropout/model control.	DP Operation to be suspended until problem is corrected. Vessel move to a safe location if required.		
21	MRU/VRS/VRU selected jumps 5° static angle.	Investigate alarm. Determine effect, if any, sensor fault has on position references.		
22	Single MRU/VRS/VRU Failure.	Consider effect on redundancy. Initiate repairs. Check remaining sensors.		
No.	FAILURE MODE (Position References)	CORRECTIVE ACTION	COMPLETED	EXERCISE No.
23	A perfect (frozen) position reference updating DP with constant position. Requires a situation where only one reference or two of the same type are selected (i.e. DGPS).	(Vessel likely to drift of due to frozen reference.) Detect fault. Enable stable references, if available, and deselect faulty references.		
24	GPS signals/ DGPS correction signals blocked because of close proximity to platform.	Determine cause. Check standing orders/field procedures for minimum references. Activate standby reference, if required/available. Consider loss during operation planning. Should have been picked up during planning, change to a different correction source.		
25	DGPS correction signals blocked/ become noisy due to atmospheric/scintillations interference.	Check standing orders/field procedures for minimum references. Activate standby reference if required/available.		
26	Artemis signal lost due to object (cranes, other vessel, etc.) passing between fixed and mobile antennas.  Also could be for Fanbeam/Cyscan/RADius/Radascan.	Determine cause (line of sight blocked). Check standing orders/field procedures for minimum references. Activate standby reference if required/available. Consider loss during operation planning.		
27	Fail RADius/Radascan due to battery failure in transponder.	Determine cause. Check standing orders/field procedures for minimum references. Activate standby reference if required/available. Consider loss during operation planning.		
28	Fanbean/Cyscan signal fails due to rain showers, snow or fog..	Determine cause. Check standing orders/field procedures for minimum references. Activate standby reference if required/available. Consider loss during operation planning.		
29	Fail HPR beacons due to excessive noise.	Determine cause. Check standing orders/field procedures for minimum references. Activate standby reference if required/available. Consider loss during operation planning.		
30	HPR interference due to another vessel in the area using the same beacon.	Check with other vessels in area before deploying beacons.		
31	Fail HPR beacons due to battery failure.	Determine cause. Check standing orders/field procedures for		

		minimum references. Activate standby reference if required/available. Consider loss during operation planning.		
32	Making position moves while working in shallow water using Taut Wire and/or HPR as references.	Take shallow water into account and expect large number of replumbs and possibly noisy HPR. If possible, deploy surface references as backups.		
33	Taut Wire fouled by ROV, diver, downlines, air lines etc.	Monitor divers/ROV closely. Make all parties aware of Tautwire/HPR locations. Deploy standby reference or fix problem with fouled reference.		
34	Taut Wire failure due to mechanical problems.	Check standing orders/field procedures for minimum references. Activate standby reference if required/available.		
35	Conducting operation with using the minimum number of references required as per standing orders or field procedures. Fail one of the references.	Have standby reference available for activation/deployment. If no standby reference, consider effect on vessel operational status.		
36	Fail references (dependent on number and type selected) to cause position dropout/model control.	DP Operation to be suspended until problem is corrected. Vessel move to a safe location if required. Check standing orders/field procedures for minimum references. Activate standby reference if required/available.		
37	Increase noise on a reference to the point where it is still accepted by DP but weight is alternating between very low and/or 0.	Detect fault. Check standing orders/field procedures for minimum references. Activate standby reference if required/available. (With no weight the reference is not acceptable.)		
38	Drop-out of DGPS signals resulting in loss of Absolute reference within DARPS system, and subsequent loss of "Reaction Box" function. (Shuttle Tanker, Tandem Loading)	Monitor movement of both FPSO and Shuttle tanker to ensure relative movement does not become out of phase. Stop cargo transfer operations. Prepare to abort operation or consider taut hawser mode if FSOG permit.		
39	Failure of all relative position reference systems, with only Absolute DGPS functioning. (Shuttle Tanker, Tandem Loading)	Use all means to assess change in relative position – such as hawser catenary and/or tension. Stop cargo transfer operations. Prepare to abort operation or consider taut hawser mode if FSOG permit.		
No.	FAILURE MODE (Power)	CORRECTIVE ACTION	COMPLETED	EXERCISE No.
40	Vessel equipped with switchboard that can be divided into at least 2 sections with a bus tie breaker. ½ the switchboard (1 section) has a blackout causing the loss of the thrusters it supplies. Vessel working	This would be a worst case failure and vessel need to go to Yellow alert, safely stop operations and then move vessel to a drift off position and move outside 500m		

	upwind of platform and near capability limits (with 1 Bus section offline).			
41	Complete blackout due to failure of bus tie breaker to work properly. (When operating with common bus.)	Monitor position while drifting. Prepare for immediate action on return of power supply.		
42	Start operation with minimum number of generators. Increase environmental loads. (Power management system fails to react to increased demand.)	Monitor power usage and request start of extra generators as required.		
43	Generator/generators fail during operation.	Consider effect of reduced power capacity on capability of vessel. Bring extra generators online (if available) to replace those lost. Move vessel to safe location if required.		
44	Generator/generators out of service either due to failure or for maintenance.	Consider effect of reduced power capacity on capability.		
45	Vessel equipped with switchboard that can be divided into at least 2 sections with a bus tie breaker. $\frac{1}{2}$ the switchboard (1 section) has a blackout causing the loss of the thrusters it supplies. Without the failed switchboard, vessel doesn't have required redundancy to conduct the operation.	Discontinue operation until redundancy is restored. Move vessel to safe location if required.		
46	Start exercise with common Bus and all online generators on either Bus 1 or Bus 2. (Blackout on that side will cause complete blackout)	Generators in use should be set so that power is available on both Bus.		
47	Complete blackout. Then make all thrusters available and give back only 1 generator or multiple generators that have insufficient power to meet thrust requirements.	Monitor position while drifting. Prepare for immediate action on return of power supply. Decide how best to utilize available power/thrust so as to minimize loss of heading/position and the possibility of further blackout.		
No.	FAILURE MODE (Environment)	CORRECTIVE ACTION	COMPLETED	EXERCISE No.
50	Change weather conditions and/or current such that work must be terminated or vessel position/heading changed.	Observe degrading weather closely and take action before vessel loses redundancy or ability to safely conduct operation.		
51	Change current and/or wind $180^\circ$ causing a @blow off@ situation to become a @blow on situation. (Possibly use in conjunction with item 52)	Determine effect on vessel capability. Determine if it is still safe to conduct operation.		
52	Increase current and/or wind to a point beyond limits for redundancy.	Change vessel heading/position to reduce current load. Suspend operation if heading/position change not possible.		
53	Wind shift from ahead to the beam. (Wind speed such that redundancy limits are exceeded.)	Determine effect on vessel capability. Adjust heading or position if required.		

54	Sudden wind shifting in both speed and direction due to thunder storm activity. (10 knots on bow to 50 knots on beam in 45 seconds.)	Determine effect on vessel capability. Adjust heading or position if required.		
No.	FAILURE MODE (Miscellaneous)	CORRECTIVE ACTION	COMPLETED	EXERCISE No.
55	Vessel is conducting subsea operations (Diving, Pipe lay, ROV, etc.) on the lee side of a platform. There is then a serious gas leak at the platform. Also applicable to DP Shuttle Tanker when connected to an FPSO during tandem loading operations.	Consider the effect of the leak on the vessel and the dangers it presents. Take action to immediately suspend operations and prepare to move the vessel to a safe location.		
56	Unknown external force causes position excursion (vessel alongside comes in contact, thruster wash, load on crane becomes fouled, crane lift was not vertical, tension on cargo hose winching line, etc.)	Determine cause of excursion and take action to remove force. Consider possibility of excursion during planning.		

#### **OFFSHORE SCHEME**

**MANDATORY:** It is compulsory for training centres to apply at least one item from each section (Thrusters, Sensors, Position Reference, Power, Environment and Miscellaneous) during the Simulator Course and its exercises. Other failures are subject to the training centre's choice, either to apply them through the exercises or discuss them during the debriefing. In the case of debriefing, a note should be made in the failure mode table to specify that.

**Items recommended:**

Item 1, 2, 3, 5 and 6

Item 20

Item 25

Item 40, 41, 43 and 47

Item 50

**SHUTTLE TANKER:** All items below are MANDATORY during Course C of the Shuttle Tanker scheme.

Item 1, 3, 4

Item 14 and Item 20

Item 23, 25, 26, 35, 36, 38 and 39

Item 42 and 45

Item 52 and 54

Item 55



## ANNEX 9

# THE NAUTICAL INSTITUTE TRAVEL EXPENSES POLICY

ACCREDITATION AND CERTIFICATION SCHEME STANDARD

## **ANNEX 9 - THE NAUTICAL INSTITUTE TRAVEL EXPENSES POLICY**

Within the constraints of The Nautical Institute's (the NI) current financial resources, the Executive Board wishes to encourage the attendance of an international mix of training providers as part of the NI's governance and consultation processes.

Training providers are required to attend the Regional Training Providers (RTP) meetings at least once every three years. The NI, however, encourages training providers to attend the meetings annually and will assist them with a partial reimbursement of their flight, transport and hotel expenses.

Only training providers who attend the meeting can claim for reimbursement. A maximum of £600 (six hundred pounds) can be claimed upon production of receipts, subject to approval by the NI, which will not be unreasonably withheld. The £600 is a maximum, but not an allowance, which means that training providers can only claim what they have spent.

When training providers decide to send two or more attendees to the area meeting, only one attendance can be claimed for reimbursement.

The reimbursement basis for rail travel will be the price of a standard class rail fare booked at least one week before the date of travel. Costs of travel to/from the home station may be claimed under this item.

The basis for air travel reimbursed by the NI shall be economy class, booked at least one month in advance, with discounts if normally obtainable. Costs of travel to/from the airports may be claimed under this item. Training providers are encouraged to book travel early so as to minimise travel costs.

Hotel accommodation will normally be booked and paid for by the NI on the basis of Bed & Breakfast at a Premier Inn or equivalent for a maximum of two nights for a one-day meeting. Any extra days or services utilised at the hotel will be for the training provider's account. If the attendee wishes to arrange his/her own accommodation, the NI will only reimburse the costs against receipts up to the cost of the Premier Inn standard.

The policies and criteria above related to flight, hotel and transport also apply to the Regional Area representative who attends DPTEG meetings.



**ANNEX 10**

**TRAINING PROVIDER ANNUAL REPORT**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **ANNEX 10 - TRAINING PROVIDER ANNUAL REPORT**

As Centres are not audited yearly, an annual report is required from all centres accredited by The Nautical Institute (the NI). The deadline for this is 31<sup>st</sup> January of each year. The report should include, as a minimum, the following:

### **TRAINING PROVIDER ANNUAL REPORT**

<b>A. CONFIRMATIONS:</b>
<ul style="list-style-type: none"><li>• Date report filed with the NI</li><li>• Year for which report refers</li><li>• Centre name (in full, this should be the official registered name)</li><li>• Address</li><li>• Date of last Audit and Accreditation/Reaccreditation, Certificate Number with validity</li><li>• Type of simulators currently in use</li><li>• 'Name of contact person', 'Date of Birth', 'NI Customer Number', 'DP Certificate Number (if applicable)', 'Nationality', 'Rank in the Company', 'Email Address', 'Alternate Email Address', 'Phone and Mobile Number'</li><li>• Comments on any changes in administrative and/or commercial set-up</li><li>• Date of last attendance of applicable RTP Meeting</li></ul>
<b>B. DETAILS OF CHANGES:</b>
<ul style="list-style-type: none"><li>• Details of any changes to address, telephone number etc. during the year</li><li>• Details of any changes in facilities, classrooms, equipment, simulator etc.</li></ul>
<b>C. INSTRUCTORS and LOGBOOK SIGNATORIES:</b>
<ul style="list-style-type: none"><li>• Details of any changes with instructors, CVs, training programmes etc.</li><li>• Current List of NI Approved Instructors with dates of approval letters</li><li>• Confirmation of current logbook signatories with names and signature samples (comment if any changes and provide the signatures and names if new additions are made)</li></ul>
<b>D. STUDENTS, DETAILS OF COURSES AND RESULTS:</b>
<ul style="list-style-type: none"><li>• Full list of <u>ALL</u> accredited DP courses run for the year with student details (1<sup>st</sup> January to 31<sup>st</sup> December) (this may be sent as an attachment in a tabulated format as shown on the subsequent page)</li><li>• Summary of feedback/evaluation from students for all accredited DP courses (this may be sent as an attachment in a tabulated format)</li></ul>
<b>F. REMARKS AND COMMENTS:</b>
<ul style="list-style-type: none"><li>• List of other courses held at the centre (non-accredited DP courses)</li><li>• Outline of future planned developments</li><li>• Any comments for NI evaluation</li></ul>

In completing the report, all fields need to be filled in. Unchanged information is to be repeated and statements such as 'no change' or 'same as before' should be avoided.

**List of DP courses with students' information**

CUSTOMER NUMBER	TYPE OF COURSE	NAME	D.O.B.	COC	RANK	NATIONALITY	EMAIL	MOBILE	COURSE DURATION (FROM/TO)	INSTRUCTOR'S NAME	DATE OF EXAMINATION	MARKS OBTAINED (%)	RESULT (PASS/ FAIL)	NI LOGBOOK NO.	CENTRE'S CERTIFICATE NO.	IMCA LOGBOOK NO (IF APPLICABLE)	REMARKS (ONLINE/ PAPER ETC)	OTHER REMARKS (1st ATTEMPT ETC)



## ANNEX 11

### ACCREDITATION COMPLAINT/APPEAL PROCEDURE

ACCREDITATION AND CERTIFICATION SCHEME STANDARD

## **ANNEX 11 - ACCREDITATION COMPLAINT/APPEAL PROCEDURE**

General enquiries and correspondence related to the DP Accreditation Standard should be directed to The Nautical Institute (the NI) using the contact details below:

### **Accreditation and Training Department**

The Nautical Institute  
202 Lambeth Road, London - SE1 7LQ  
United Kingdom

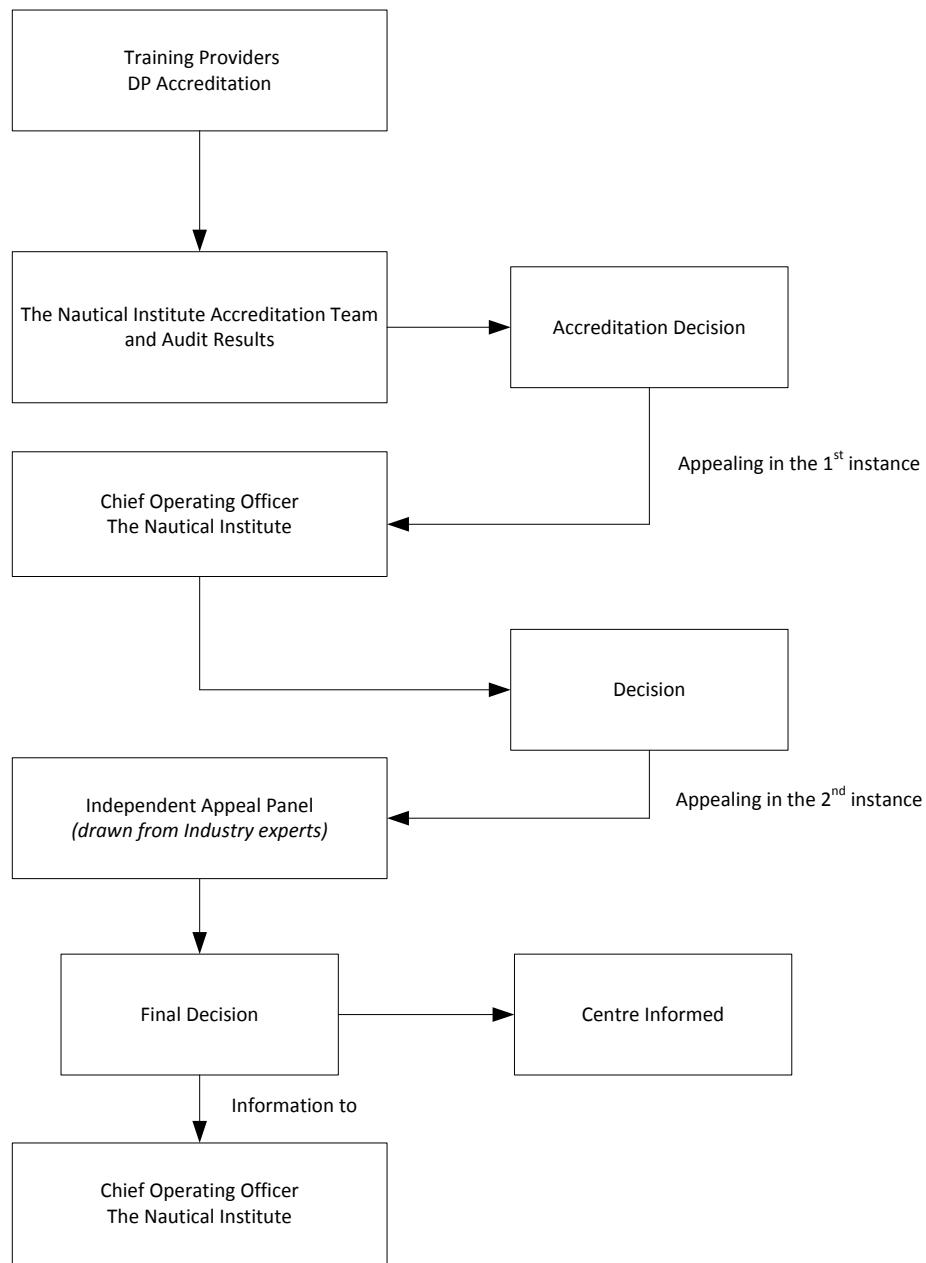
Email: [accreditations@nautinst.org](mailto:accreditations@nautinst.org)

Tel: +44 (0) 207 928 1351

Complaints and disputes related to the DP Accreditation Standard should be directed to the NI using [john.lloyd@nautinst.org](mailto:john.lloyd@nautinst.org). Acknowledgements will normally be made within seven days and a response given within 50 days. Matters escalated beyond the Accreditation and Training Department will be dealt with in accordance with the governance structure depicted on the next page.

Decisions supported by the Independent Appeal Panel will, in all matters, be considered final. Training centres should make every effort to ensure that all points raised at the closing meeting of the audit are understood and any questions discussed and clarified. Any complaints or appeals raised as a result of the accreditation visit will be subject to a resolution procedure, which may entail a re-visit to the centre with three auditors and this cost will be borne by the training centre as per the Accreditation agreement.

## ACCREDITATION APPEAL PROCESS



### GENERAL INSTRUCTIONS FOR THE APPEAL PROCESSES

1. DPTEG Associations will provide up to five names, CVs and contact details from their members to the NI to compose the Appeal Panel list.
2. Where the Independent Appeal Panel is needed, the NI will select three names from the Panel list, avoiding any obvious conflicts of interest. The NI will check their availability to work on the appeal case and enquire whether there are any conflicts of interest before sharing any detailed information on the case.
3. Once availability and suitability is confirmed, the independent persons will be required to sign a confidentiality agreement with the NI to ensure that no data will be shared outside of the investigation and appeal process.
4. Once the confidentiality agreement is signed, the NI will confirm the Panel composition and share the documents of the case with panellists.
5. The Panel will have 45 days from the sharing date of the documents, to assess the case and provide the final report with final decision to the NI.

6. The Panel may meet physically or through electronic means, whichever is deemed most convenient by the members.
7. The Panel should agree on a Chairman from their number and delegate the taking of notes to a different panellist, who should also compile the final report.
8. Other administrative matters may be decided upon between the panellists.



## **ANNEX 12**

# **CERTIFICATION COMPLAINT/APPEAL PROCEDURE**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **ANNEX 12 - CERTIFICATION COMPLAINT/APPEAL PROCEDURE**

General enquiries and correspondence related to the DP Certification scheme should be directed to The Nautical Institute (the NI) using the contact details below:

### **DP Department**

The Nautical Institute  
202 Lambeth Road, London - SE1 7LQ  
United Kingdom

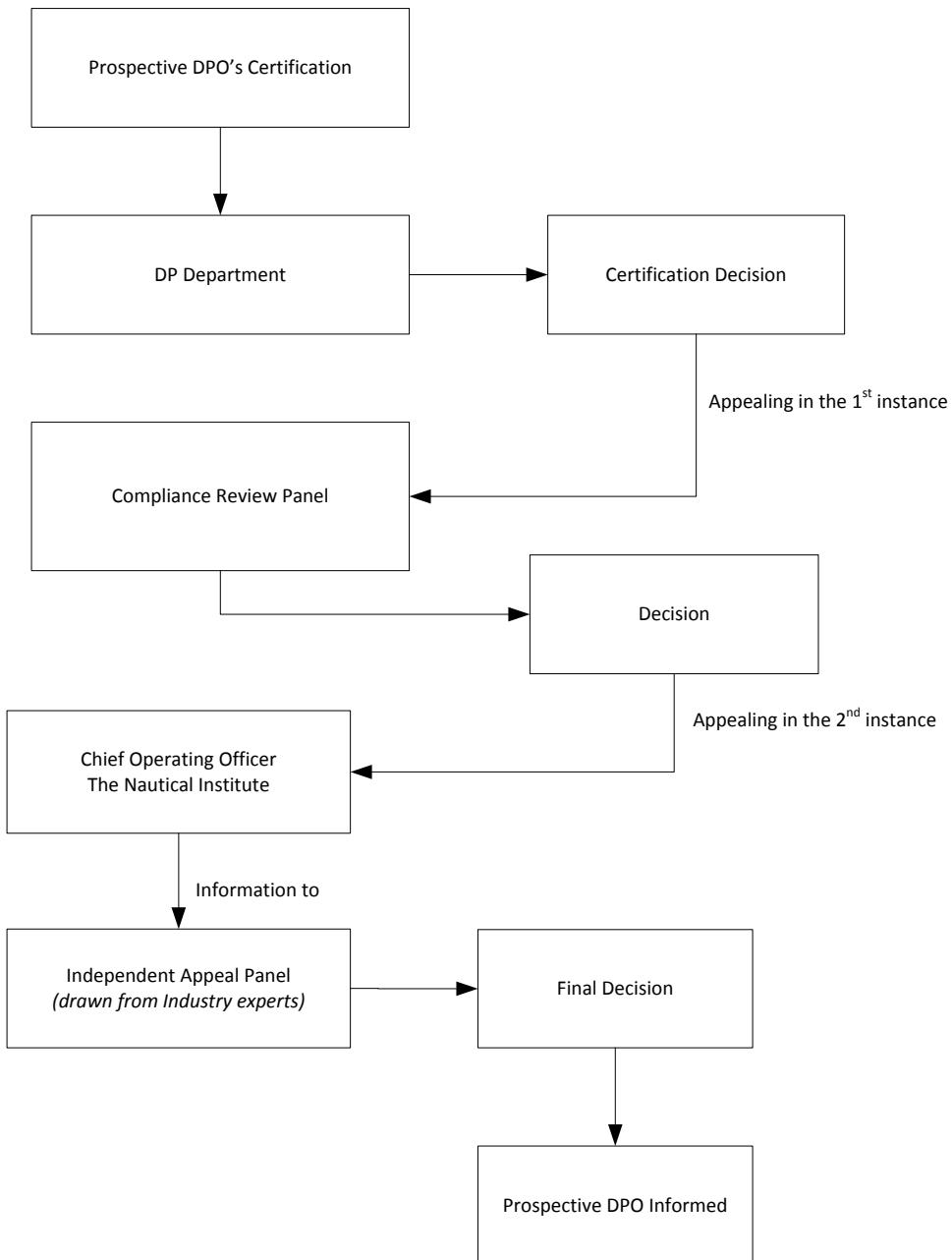
Email: [dp@nautinst.org](mailto:dp@nautinst.org)

Tel: +44 (0) 207 928 1351

Complaints and disputes related to the DP Certification scheme should be directed to the NI using [john.lloyd@nautinst.org](mailto:john.lloyd@nautinst.org). Acknowledgements will normally be made within seven days and a response given within 50 days. Matters escalated beyond the DP Department will be dealt with in accordance with the governance structure depicted on the next page.

Decisions supported by the Independent Appeal Panel will, in all matters, be considered final. Any complaints or appeals raised as a result of an unsuccessful application will not be considered under this complaint/appeal procedure as the processing of an application is final unless explicitly stated by the DP Department.

## CERTIFICATION APPEAL PROCESS



### GENERAL INSTRUCTIONS FOR THE APPEAL PROCESSES

1. Where the Compliance Review Panel is needed, DP certification team leaders and supervisors will work on the appeal case.
2. The Panel will convene monthly to assess cases with 14 days given to the prospective DPOs to appeal any decisions made.
3. The COO and the Independent Appeal Panel will deliver the final report with a final decision to the applicant which must be accepted after the second appeal.



## **ANNEX 13**

# **DYNAMIC POSITIONING TRAINING EXECUTIVE GROUP (DPTEG)**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **ANNEX 13 - DYNAMIC POSITIONING TRAINING EXECUTIVE GROUP (DPTEG)**

### **Guidance and Procedures**

#### **1. INTRODUCTION**

DPTEG generally seeks to make decisions on a consensus basis and to recommend actions to improve the DP training scheme and maintain its high standards although a majority voting system may be used to reach a decision. The Nautical Institute (the NI) provides the financial support to ensure the effective administration of scheme including the costs of DPTEG.

DPTEG operates with the delegated authority of the Executive Board of the NI to take decisions on the standards within the scheme. The Executive Board does reserve the right to refer such decisions back to DPTEG for reconsideration if there are concerns about the process or wisdom of a particular decision. The reasons for any such referral will be put to DPTEG in writing to be considered at its next meeting, whether scheduled or intersessional and whether physical or electronic. During the referral process, the decision may remain pending and will not be implemented by the NI. Ultimately, the Executive Board, having exhausted the referral process, may overturn a decision if they consider it would damage the NI materially.

#### **2. ROLE OF DPTEG**

The remit of DPTEG is to determine the standards of training required to meet the competencies required by the NI DP Operator training scheme and to evaluate its effectiveness in providing the DP industry with competent DP Operators. In so doing, DPTEG will provide advice on the management of the scheme. Developments within the DP industry will be considered in the context of changes within the maritime industry and regulatory environment as a whole. The day to day management of the scheme processes is the sole responsibility of the NI although the advice of DPTEG will be requested when considered necessary.

#### **3. COMPOSITION OF DPTEG**

Changes to the membership may be made when and if considered appropriate on the basis of recommendations from DPTEG to the NI Executive Board whose decision shall be final. Prospective new members should apply to DPTEG through the Secretary and should include at least the following information:

- Membership and governance structure of the organisation
- Involvement in DP operations
- Knowledge and expertise being made available to DPTEG

It is expected that one representative from each DPTEG member will attend each meeting in person or via electronic media. At the discretion of the Chairman, other relevant personnel may be invited to attend a meeting as observers and/or to make a presentation on a particular subject. These additional attendees will not be entitled to a vote and their attendance shall be funded by their representative organisation. RTP members of DPTEG are entitled to claim their travel, accommodation and subsistence expense for attending the meeting from the NI as per the claim policy in force at the time. Some of the costs of attending these meetings can be reimbursed as outlined in the NI travel expenses policy (Annex 9).

#### **4. DPTEG ADMINISTRATION AND MEETINGS**

The Chairman of DPTEG will be a senior member of the NI with relevant experience who will be selected through the NI's governance process. He/she will be supported by the NI Accreditation Manager acting as the Secretary to DPTEG. The NI will be represented by a staff member, normally the Chief Operating Officer (COO) who will be a voting member of DPTEG and he/she may be assisted by a DP Technical Advisor who shall be a member of the NI. The Secretary and DP Technical Advisor will be non-voting members of DPTEG.

Where consensus on a proposal cannot be reached a vote of the members present, in person or electronically, or by proxy given prior to the meeting in writing by those absent will be taken on the basis of one member one vote. In the event of a tied vote, the Chairman may exercise a casting vote. The minutes shall record the result of such votes and shall indicate any members in disagreement with the decision.

The Secretary to DPTEG shall be responsible for the preparation of the agenda for each meeting in consultation with the Chairman and members. The agenda and supporting papers should be circulated to members at least three weeks in advance of the meeting. It is therefore important that members wishing to

propose agenda items should contact the Secretary at least five weeks in advance of the meeting and supply any supporting papers at that time or by the circulation date of the agenda.

The Secretary shall be responsible for preparing the minutes of the meeting with action points, agreeing them with the Chairman, and circulating them to the members within a reasonable timescale (usually two weeks) after the meeting. The members of DPTEG will be invited to provide any amendments to and their confirmation regarding the accuracy of the minutes prior to their circulation to the industry. This process needs to be completed in a timely manner so members should respond to the Secretary within two weeks so that final circulation of the minutes can be achieved within six weeks. The Secretary shall update the Executive Board through the NI Chief Operating Officer (COO) about decisions made and maintenance of the DP scheme.

DPTEG members will disseminate the appropriate information about the DP training scheme to their members. The NI is responsible to disseminate information about the training scheme.

## **5. DPTEG TERMS OF REFERENCE**

The scope of the review, development and evaluation of the scheme is set out below:

### **Accreditation standards for DP training providers**

- Training course syllabus and content
- Training delivery and methodologies
- Training technologies including simulator specifications
- Entry level requirements
- Scheme learning outcomes
- Assessment criteria and methods

### **DP Operator training requirements**

- DP Operator knowledge, understanding & proficiencies (KUP)
- DP Logbook content and procedures
- Initial Certification criteria
- Certification upgrade/conversion criteria
- Certificate revalidation criteria
- Measures to guard against and combat fraudulent applications

### **General**

- Appeal processes and composition of list of potential appeal panellists
- Quality Assurance
- Dissemination of relevant information on the scheme to members
- Assessment of potential new members of DPTEG and recommendation to the Executive Board of the NI
- Assist and support the NI to promote the scheme at DP Conferences when necessary

DPTEG will seek to facilitate the exchange of information and liaise regarding DP Operator training with:

- Maritime administrations
- Government bodies
- Professional organisations and trade associations
- Training providers
- Individual companies
- Individual DP Operators
- Classification societies and other training certifications schemes

DPTEG will normally meet twice a year. When necessary, electronic meetings shall be set up by the Secretary.

### **Administrative Comment**

*The Decision and Action list will be distributed to DPTEG members within five days of the meeting to allow progress on important matters prior to the formal review and approval of meeting minutes.*



## ANNEX 14

### **REGIONAL TRAINING PROVIDER GROUPS (RTPs)**

**ACCREDITATION AND CERTIFICATION SCHEME STANDARD**

## **ANNEX 14 - REGIONAL TRAINING PROVIDER GROUPS (RTPs)**

### **Guidance and Procedures**

#### **1. INTRODUCTION**

The RTPs are training providers that are part of DPTEG. DPTEG and the RTPs generally seek to make decisions on a consensus basis and to implement actions to improve the DP training scheme and maintain its high standards although a majority voting system may be used to reach a decision. RTPs normally meet twice per year with one meeting typically being held electronically.

#### **2. ROLE OF RTPs**

The remit of the RTPs is to assist in the review and development of the NI DP Operator training scheme with particular reference to the standard of training courses and the training tasks onboard. In so doing, the RTPs will provide advice on the content of the training scheme standards for training providers and certification of DPO trainees. The developments within the DP industry must be considered in the context of changes within the maritime industry and regulatory environment as a whole.

The scope of the review and development of the scheme is set out in the Terms of Reference and this may be changed and updated from time to time. Each of the RTP groups provides a representative, normally the Chairman, to the DPTEG meetings and operates a correspondence network. Each group normally meets annually to discuss issues relevant to the scheme, make proposals to DPTEG, and share best practice with other members of the group.

The day to day management of the scheme processes is the sole responsibility of the NI although the advice of DPTEG and the RTPs will be requested when considered necessary.

#### **3. THE COMPOSITION OF RTPs**

The membership of each RTP will comprise a representative from each NI accredited DP training provider in their geographic area.

It is expected that one representative from each training provider in the area will attend each meeting of their RTP in person or via electronic media at least once every three years. At the discretion of the Chairman, other relevant personnel may be invited to attend a meeting as observers and/or to make a presentation on a particular subject. These additional attendees will not be entitled to a vote and their attendance shall be funded by their representative organisation. Substantive members of the RTP are entitled to claim their travel, accommodation and subsistence expense for attending the meeting from the NI as per the claim policy in force at the time as outlined in the NI travel expenses policy (Annex 9).

#### **4. RTPs ADMINISTRATION AND MEETINGS**

The Chairman of the RTPs and a Vice Chairman will be elected by the RTP members for a term of one year and may be re-elected. The maximum term of office is normally six years in total. In the event that there are no new volunteers to be elected, the RTP committee may elect to continue the existing arrangements. Each RTP will also elect a Secretary for the group to assist the Chairman with the administration of the group by preparing and circulating the agenda and minutes of the meetings and managing the correspondence network. The Secretary will also be elected for a three year term of office and may be re-elected to a second term of three years. Where no such appointment is possible, the Chairman will be responsible for appropriate arrangements.

Where consensus on a proposal cannot be reached a vote of the members present, in person or electronically, or by proxy given prior to the meeting in writing by those absent may be taken on the basis of one member one vote. In the event of a tied vote, the deciding vote will be cast by the NI. If the NI is not in attendance the issue would be passed on to the NI for deliberation after the meeting. The minutes shall record the result of such votes and shall indicate any members in disagreement with the decision.

The Secretary to the RTP shall be responsible for the preparation of the agenda for each meeting in consultation with the Chairman and members. The agenda and supporting papers should be circulated to

members at least 2 weeks in advance of the meeting. It is therefore important that members wishing to propose agenda items should contact the Secretary at least three weeks in advance of the meeting and supply any supporting papers at that time or by the circulation date of the agenda.

The Secretary shall be responsible for preparing the minutes of the meeting with action points for further work and recommendations for DPTEG, agreeing them with the Chairman, and circulating them to the members within a reasonable timescale (usually two weeks) after the meeting. It is the Chairman's responsibility to ensure that the minutes and recommendations are passed in a timely manner to the NI for circulation to DPTEG.

RTP members are responsible for the dissemination of the appropriate information about the training scheme to their staff at the training institution. RTP Chairman is responsible for the dissemination of the appropriate information and clarifications about the training scheme and DPTEG decisions to the RTP members.

## **5. RTPS TERMS OF REFERENCE**

The remit of the RTPs is to assist in the review and development of the NI DP Operator training scheme with particular reference to the standard of training courses and the training tasks onboard. In so doing, the RTPs will provide advice on the content of the training scheme standards for training providers and certification of DPO trainees. The developments within the DP industry must be considered in the context of changes within the maritime industry and regulatory environment as a whole.

The scope of the review and development of the scheme is set out below:

### **Accreditation standards for DP training providers**

- Training course syllabus and content
- Training delivery and methodologies
- Training technologies including simulator specifications
- Entry level requirements
- Scheme learning outcomes
- Assessment criteria and methods
- Appeal process

### **DP Operator training requirements**

- DP Operator knowledge, understanding & proficiencies (KUP)
- DP Logbook content and procedures
- Initial Certification criteria
- Certification upgrade/conversion criteria
- Certificate revalidation criteria
- Measures to guard against and combat fraudulent applications
- Appeal process

### **General**

- Quality Assurance
- Dissemination of relevant information on the scheme to staff

DPTEG, with the assistance of the RTPs, will seek to facilitate the exchange of information and liaise regarding DP Operator training with:

- Maritime administrations
- Government bodies
- Professional organisations and trade associations
- Training providers
- Individual companies
- Individual DP Operators

RTPs will normally meet at least once per year in person with an additional meeting to be held electronically as required.