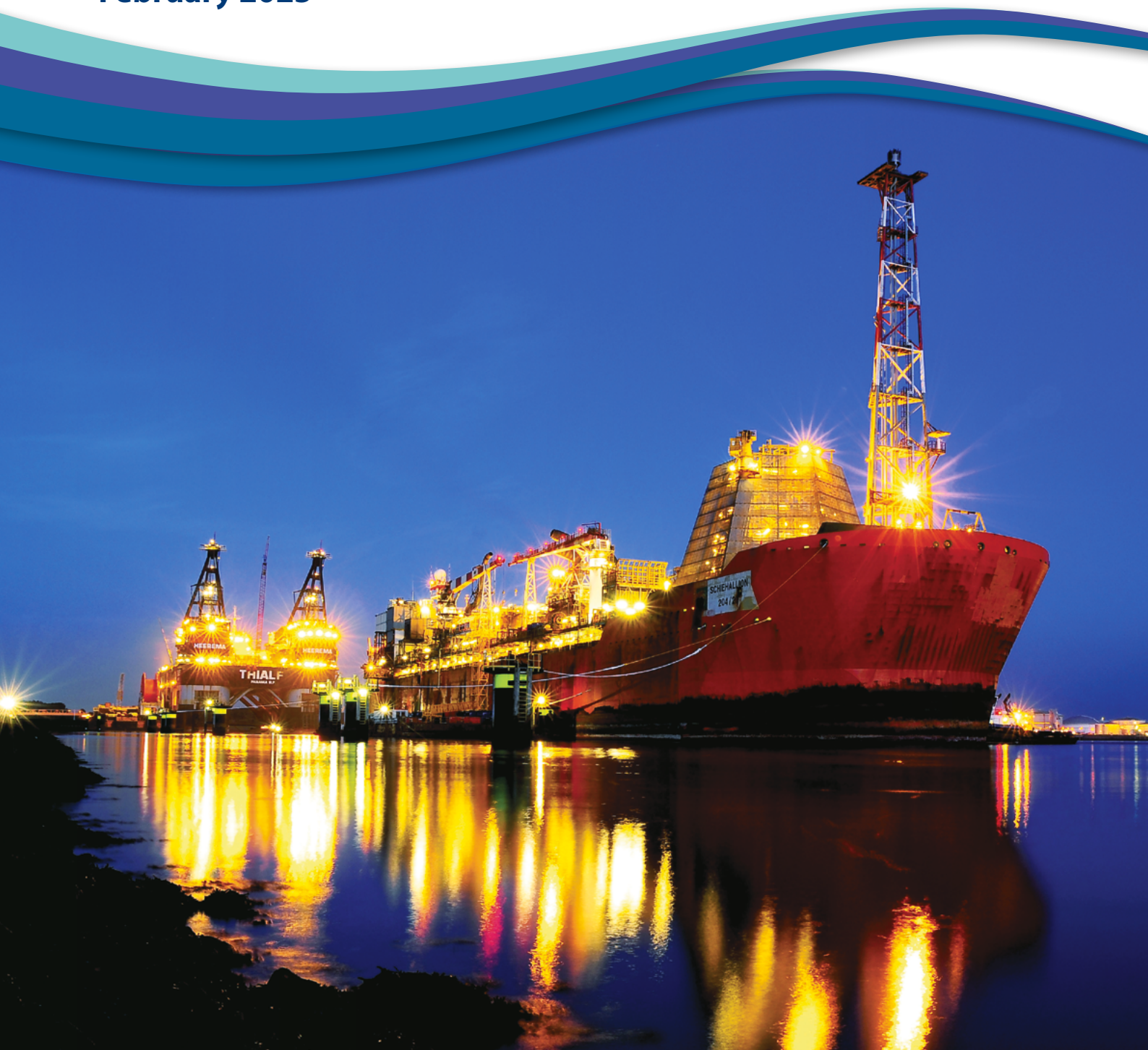
The Nautical Institute

Ballast Control Operator Training Scheme Accreditation Standard

February 2025



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Ballast Control Operator Training Scheme Accreditation Standard

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The NI Ballast Control Operator Training Scheme Accreditation Standard		
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The NI Ballast Control Operator Training Scheme Accreditation Standard	1.6	20/02/2025

Table of changes

Page	Subject	Original content v1.5 (August 2024)	New content v1.6 (February 2025)
9	Theory Part 2		Advance stability, amended
P23	Control Table		Amended

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1 Introduction to the Ballast Control Operator Training Standard

This document provides guidance on the Ballast Control Operator training scheme and certificate for providers wishing to be accredited to deliver training.

The Nautical Institute has developed this accreditation standard to be consistent with the relevant sections of IMO resolution 1079(28). The Training Standard should be read and implemented in conjunction with this IMO Resolution.

These standards have been developed and kept up to date with the full engagement and co-operation of key stakeholders.

1.1 The Role of The Nautical Institute

The Nautical Institute facilitates and administers the accreditation of Ballast Control training centres and the certification of Ballast Control operators as per the standard agreed by industry and flag administrations.

1.2 Overview of The Nautical Institute Ballast Control Operator Training Scheme

The process necessary to be awarded a Nautical Institute Ballast Control Operator certificate, depending on what type of unit a person will carry out training, will require the following elements to be completed:

- Basic and Advanced Stability Theory
- Practical and Emergency Training on motion simulators
- Continuous BCO Assessment

Ballast Control Operator Certificate				
	Semi-submersible column-stabilised unit (drilling, accommodation, diving, heavy lifting)	Monohull mobile offshore unit (drillship, FPSO)	3-leg self-elevated units (drilling jackups)	4-leg self-elevated units (wind turbine installation, accommodation)
STEP 1	Basic stability theory (14hrs)			
STEP 2	Advanced stability for Semisubmersible and Monohull (18hrs)		Advanced stability for jackup (18hrs)	
STEP 3	Practical and emergency training on motion simulator for column-stabilised (32 hrs)	Practical and emergency training on motion simulator for monohulls (18 hrs)	Practical and emergency training on motion simulator for 3-leg jackups (18 hrs)	Practical and emergency training on motion simulator for 4-leg jackups (32 hrs)
STEP 4	Continuous BCO assessment			

Eligibility for qualification as a BCO shall be as follows:

Documented sea service on a relevant Mobile Offshore Unit by successful completion of the BCO record book and a signed reference letter confirming the record book from the Master/OIM. The record book confirms training as second BCO for a period of 180 days of undertaking BCO activities. The candidate shall hold an STCW (White List) Certificate of Competency as recognised by the administration (IMO Res A.1079(28) Para 6.4.3) and a valid Medical Certificate together with proof of the following short courses:

- Personal Survival Techniques (A-VI/1-1)
- Minimum standard in competence in fire-fighting (1-2)
- Elementary first aid (1-3)
- Personal Safety and Social Responsibilities (1-4)
- Proficiency in survival craft (PISC)Security Awareness (6-2)

or valid marine COC

N.B. The IMO Resolution A.1079(28) is recommended advice to flag states and operators and it does not state what level of CoC is advised. However, if a flag state considers that other criteria are sufficient (such as previous experience, knowledge, attendance and holding a previous BCO certificate), it can approve the candidate to act as a BCO. The candidate must hold the STCW certificates listed above.

In addition, a VHF operator's certificate recognised by the flag state shall be required.

1.3 Revalidation

Evidence is to be provided to the NI of 180 days of sea service acting as a BCO and valid Practical Stability Training for BCO – Refresher Course.

The BCO Certificate is valid for five years. To maintain the currency of the certificate, the holder shall obtain at least 180 days of service as a BCO within the past five years, continue to hold a valid white-list CoC or maintain the approval of the flag state to act as a BCO and continue to hold the above valid certificates.

If a BCO operator cannot obtain sufficient required sea service to maintain currency, they may undertake a 5-day Practical Stability Training for BCO on a motion simulator at an approved training provider. They must also show 90 days of sea service.

1.4 Grandfathering

A lapsed operator who wishes to obtain a current BCO certificate must provide their previous proof of service as a BCO, including evidence of 180 days of sea service as a BCO or second BCO within the past five years, together with a company letter of confirmation from the owners of an MODU and possess valid Practical Stability Training for BCO at an approved training provider. If they are unable to prove the required sea service, the NI will accept a statutory declaration of sea service, i.e. on the approved form signed in the presence of a Justice of the Peace, lawyer or solicitor.

1.5 Training Standard

Accreditation is given for both the Basic Stability course, the Advanced Stability course and the full-motion simulator course. When a training centre applies for accreditation, it must submit all required materials for both basic and advanced courses. Together, these elements provide the theory elements of the course.

Where a centre has a simulator to support the delivery and assessment of the course, this may be used, after Nautical Institute validation, to complement the sea-time experience and provide the practical elements of the course including Emergency Situation Training.

To ensure consistency of understanding, these three elements are known as:

- Theory – Basic and Advanced Stability
- Practical Training – Motion Simulator

Ballast Control Operator:

Knowledge, experience and competence in each of the following matters is considered necessary for the proper discharge of the essential safety and pollution-prevention functions assigned to the Ballast Control Operator on Mobile Offshore Units:

Theory Part 1: Basic Stability (column-stabilised, monohulls, 3-leg jackups, 4-leg jackups):

Understanding of general terms and definitions, e.g. basic principles of forces and moments, displacement, draught, trim, heel, freeboard, buoyancy, reserve buoyancy, basic units, systems of measurement (Metric, Imperial & US units) etc.

Basic principles of design, construction and layout of an MOU, the impact on stability and its effect on deck loading. Use of loading and stability information from trim and stability diagrams and the marine operations manual. Additionally, proficient use of computerised loading and stability programs is expected where appropriate.

- Understanding of centre of gravity, centre of buoyancy, position of metacentre, GM margin, righting lever and its effect on transverse stability
- Stable, unstable and neutral equilibrium
- Theory of moments applied to stability including the effects of heavy lifts and movement of same
- Effect of adding, removing and shifting weight. Calculation of vertical, transverse and longitudinal shift of centre of gravity
- Understanding of the inclining experiment report and its use
- Effect of free surface on stability and factors affecting same
- General understanding of change of trim, trimming moments, longitudinal metacentre and longitudinal stability
- Use of hydrostatic curves, deadweight scale and hydrostatic tables
- Use of cross curves to produce a curve of statical stability and information from curve
- Dynamical stability; synchronous rolling and angle of loll; stability criteria for MOUs
- Effect of mooring system on stability
- Daily loading calculation

Theory Part 2: Advanced Stability (column-stabilised, monohull) :

- Deck loads and effect on stability; change in lightweight
- Examination of ballasting systems and procedures
- Response to system failures including station-keeping systems, damage to structures and subsequent action
- Damage-control procedure, watertight compartment counter-flooding, use of pumping systems and cross-connections
- Environmental conditions and their effect on stability
- Unit and environmental limitations and criteria for changing to survival condition
- Zones of reduced stability, precautions to take, asymmetrical ballasting or de-ballasting and importance of sequence with regard to stress
- Theory of calculations carried out on daily loading sheet, variations in chain deployed and effect on vertical moment
- Emergency procedures
- Regulations, rules, certification requirements with regard to international conventions, flag state and any local regulations
- Understanding low-frequency wave drifting effect on column-stabilised units
- Planning and preparation of monohull units to go to survival condition with or without draft change
- Influence of enclosed moonpools and large windage area for unit stability
- Planning ballasting operation with repsect to skew forces limitation on semisubmersibles units and bending moments and shearing forces limitation on monohulls

Theory Part 2: Advanced Stability (3- and 4-leg jackups)

- Deck loads and effect on stability; change in lightweight
- Examination of ballasting systems and procedures
- Response to system failures, damage to structures and subsequent action
- Damage-control procedure, watertight compartment counter-flooding
- Environmental conditions and their effect on stability
- Unit and environmental limitations and criteria for changing to survival condition
- Theory of calculations carried out on daily loading sheet, variations in chain deployed and effect on vertical moment
- Emergency procedures
- Regulations, rules, certification requirements in regard to international conventions, flag state and any local regulations
- To be familiar with intact and damage stability requirements
- To carry out and plan safe mass allocation management in afloat and elevated position
- To be familiar with site-specific assessment processes
- To understand how to interpret all afloat and elevated parameters and operational limitations
- To know how to use bearing pressure capacity plots
- To know how to interpret changes in RDP values
- To understand initial reactions to unexpected punch-through
- To understand preloading processes
- To understand procedure and limitation during transition from afloat to elevated condition with and without DP systems
- To understand windfarm lifecycles

Practical and Supplementary Training:

Having successfully completed the formal training, as indicated above, candidates should work in a Ballast Control room only under the supervision of a competent person for a period of six months to enable them to complete Ballast Control Operator familiarisation log sections 1 through 7 to become fully familiar with the ballasting system and functionality and capabilities of that unit. Prior to receiving designation as a lead BCO and assuming the responsibilities for the entirety of stability operations, the individual should complete a recognised Practical Training for BCO Course on a motion simulator for emergency exercises to include qualified observer evaluation of the exercise(s).

Methods for demonstrating competence and criteria for evaluating competence for ballast control operators are set out in Table 6.4.

Examples of classroom assessments that may be undertaken during practical training for BCO on a motion simulator for column-stabilised units:

- Damage stability exercises
- Response to emergencies such as fire, flooding and collision
- Loading heavy lifts that require pre-ballasting
- Familiarity with failure modes and remedial actions for valve operations
- Ballasting to survival draft
- Ballasting for extreme weather
- De-ballasting to transit draft and understanding restrictions for helicopters and cranes
- Planning and carrying out ballasting during typical offshore activities to maintain optimum unit stability
- Use of ballast water treatment plant

Examples of classroom assessments that may be undertaken during practical training for BCO on a motion simulator for monohull units:

- Damage stability exercises
- Response to emergencies such as fire, flooding and collision
- Loading heavy lifts that require pre-ballasting
- Familiarity with failure modes and remedial actions for valve operations
- Ballasting to survival draft
- Achieving survival condition without draft change
- Ballasting for extreme weather
- De-ballasting to transit draft
- Planning and carrying out ballasting during typical offshore activities to maintain optimum unit stability
- Use of ballast water treatment plant

Examples of classroom assessments that may be undertaken during practical training for BCO on motion simulator for self-elevated 3-leg jackup units:

- Damage stability exercises in afloat condition
- Intact and damage stability assessment
- Familiarity with failure modes and remedial actions for valve operations
- Preloading procedure for a 3-leg jackup
- Stability preparation for elevating the unit
- Elevating and lowering the unit
- Maintaining unit centre of gravity in harsh environments
- Punch-through experience and correct action
- Assessment-based RPD values while elevating and lowering the unit

Examples of classroom assessments that may be undertaken during practical training for BCO on motion simulator for self-elevated 4-leg jackups units:

- Damage stability exercises in afloat condition
- Intact and damage stability assessment
- Familiarity with failure modes and remedial actions for valve operations
- Preloading and pre-dive procedure for a 4-leg jackup
- Stability preparation for elevating the unit
- Elevating and lowering the unit
- Maintaining unit centre of gravity in harsh environments
- Punch-through experience and correct action
- Assessment-based RPD values during elevating and lowering the unit
- Heavy-lifting crane operation in port and on location

Table 6.4: Specification of minimum standard of competence for Ballast Control Operator			
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Plan and ensure safe ballasting and deballasting operations and account for changes in deck loads. Include ballasting from a transit situation to an operational situation.	Knowledge of and ability to apply relevant international and national standards concerning stability. Use of loading stability information that may be contained in or derived from stability and trim diagrams, operation manuals or computer-based loading and stability programs.	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training or examination.	Ballasting and deballasting operations are planned and executed in accordance with established procedures. Changes in deck loads are accounted for in accordance with established procedures.
Operational control trim, stability and stress.	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and the measures necessary to preserve trim and stability criteria for MOUs, environmental limits and criteria for survival conditions. Understanding the inclining experiment report and its use of daily loading calculations. Dynamical stability. Effect of mooring systems and mooring line failure.	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation, formal instruction, simulator training or examination.	Stability and stress conditions are always maintained within established safe limits, taking into account company, vessel and class procedures.
Respond to emergencies.	Knowledge of emergency procedures. Knowledge of the effect on trim and stability of flooding due to damage, firefighting, loss of buoyancy or other reasons, and countermeasures to be taken. Effectively communicate stability-related information.	Assessment of evidence obtained from one or more of the following: in-service experience, direct observation during drills and exercises, formal instruction, simulator training or examination.	Established procedures are followed during drills and emergencies. Communications are clear and effective.

A1 Appendix 1 – Ballast Control Operator Course General Requirements

Training Methodology

The Centre will define its training methodology, which will establish the framework within which the course will be delivered.

It will identify key elements of delivery and assessment including:

- Length of course
- Delivery techniques
- Assessment strategy
- Key resource requirements
- Entry pre-requisites
- Required reading
- Attendance requirements
- Reference texts and publications

Course Specification

Course Documentation – 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 and to provide a reference for all trainers at a particular centre to train to the same standard and to act as a basic stability 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
- Course overview and purpose
- Course aims and objectives
- Course timetable with breakdown of time assigned for each module and coffee/lunch breaks
- Lesson plans and objectives
- Materials and other equipment required for each course module
- Copies of slide presentations
- Copies of student handouts
- Explanation of the centre's assessment system including master copies of the form or forms that will be used to provide written evidence of each student's performance on individual simulator exercises and for the course overall

In addition, where a simulator is used:

- Details of the simulator equipment including a plan of the simulator layout
- The model the centre uses for planning a simulator exercise
- Lesson plans and objectives for each module and exercise
- Practical exercises (both student and instructor versions)

In most cases, training organisations hold copyright of their training materials and prefer to have control of all manuals on site. The Institute supports this approach and requires that at least one controlled **master copy of the instructor's manual** for each course taught should be maintained by the Centre Co-ordinator. 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 the students will be assessed
- Health and safety information for the particular centre
- Complaint and 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 Co-ordinator. This master copy may be kept electronically.

Material given to students should contain examples of real-life Ballast Control incidents, as well as an overview of The Nautical Institute Ballast Control Operator certification process and information or links to relevant industry websites such as IADC, ICS, IMCA, ISOA or OCIMF.

Note: Instructor's and students' manuals shall have date and version as part of the quality-management system and document control.

Stability Theory Course

Number of Hours

A minimum of 32 hours' teaching time is required for the combined Basic Stability Theory (Part 1) and Advanced Stability Theory (Part 2) courses. Where additional time is required to run exams or deal with paperwork, this time shall be added to the 32 hours. Where the course is delivered using simulation, a minimum of 80% of the time shall be spent on teaching Ballast Control theory and not more than 20% on practical exercises.

Ratio of Students/Instructors/Equipment

The number of students attending the Basic and Advanced Stability course must be regulated such that each student obtains enough support in the learning environment. To achieve this support, the Institute allows a maximum of eight students per class being taught by one instructor. Where a full-motion simulator is used, the maximum number of students shall be four.

Delivery Method

At the start of the Basic Stability course, The Nautical Institute Ballast Control Operator Training Scheme will be outlined, including maintenance of records and the procedure for obtaining a Ballast Control Operator certificate.

The Basic Stability course will be predominantly theory-based with guided practical and safety/emergency exercises that introduce the trainee to various Ballast Control operational modes. The training shall be predominately practical and operational in nature. Exercises and case studies will be carried out in a facility that meets the provisions set out in the document "NI Ballast Control Simulator Specification" in Appendix 4 of this document.

The ability to communicate is an important aspect of a BCO, therefore a VHF Operator's certificate is a requirement.

Assessment

In order to be awarded a certificate of completion for the Stability theory course, the trainee must pass a validated online or paper assessment protocol at the training centre. The pass mark shall be 65%.

Students who fail the first attempt can be allowed two additional attempts within six months of the first attempt; however, the second attempt must be undertaken within 24 hours of the first attempt. A student who fails these three initial attempts is required to repeat the course and undertake the assessment again.

Practical Course (Simulator & Simulator Refresher)

Number of Hours

A minimum of 32 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 32 hours. It is recommended that a maximum of 20% of the course time is spent on theory and a minimum of 80% on practical exercises.

Simulator Refresher

The minimum teaching time for the simulator refresher course is 14 hours, any additional time required to deal with the administration shall be added to the 14 hours. It is recommended that 10% of the course time is spent on theory and 90% on practical exercises.

Ratio of Students/Instructors/Equipment

The number of students attending the simulator course must be regulated such 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 Institute allows a maximum of four students per class to receive instruction from one instructor per simulator.

Delivery Method

The training will be predominantly practical and operational in nature. Exercises and case studies will be carried out in a facility that meets the provisions set out in the document NI Ballast Control Simulator specification.

In addition to briefing and debriefing on the exercises, 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 Stability Theory courses.

Ballast Control scenarios must closely match the situation onboard a vessel. Communications form an important part of any Ballast Control situation; thus, they must be adequately simulated in any training facility.

The training facility will need to provide material to support the hardware simulator platform. This will mainly consist of a variety of documentation. The range of documentation will include:

- Plans and diagrams showing the on-board arrangements
- Diagrams of the various pipeline, pump and valve arrangements within the system
- Drawings and data sheets relating to the vessel or vessels under simulation; these drawings to include Ballast Control capability
- Operational instructions, checklists and standing orders associated with the vessel or vessels
- A set of scenario information sheets. Each scenario should be designed to demonstrate at least one planned and distinct emergency incident to which the trainees must react

Emergency Procedures

- Recognise the conditions that will cause degraded operational status or critical emergency conditions
- Recognise the warnings and alarms associated with catastrophic or other associated failures including worst-case failure
- Evaluate the various factors to be considered subsequent to any system failure and determine appropriate actions
- Carry out procedures to stabilise the vessel condition

A2 Appendix 2 – Ballast Control Instructor Requirements

1. Ballast Control Instructor Certificate: An NI Ballast Control certificate is required to become a Ballast Control instructor.

2. Minimum Experience: Ballast Control instructors must have a minimum of 12 months of actual experience on board a Ballast Control vessel as a certified Ballast Control Operator before becoming a Ballast Control instructor.

3. The minimum qualification for the position of team leader or supervisor is to hold a Master FG CoC or Offshore Installation Manager certificate, together with the appropriate experience. Other qualifications shall be assessed on a case-by-case basis.

4. All instructors must possess a teaching certificate issued by an NI recognised provider. These courses shall focus on recognised teaching methodology and assessment.
   4.1 The Nautical Institute accepts the IMO's 'Train the trainer' (IMO 6.09 and IMO 6.10) as a teaching certificate.

5. All instructors must undertake a training programme and pass the assessment set by the training centre, following the table of competences to become a Ballast Control instructor. Training programme and table of competences are described later in this document.

6. The centres shall have instructors on a rotation or on-call basis. However, all of them will have to present their teaching certificate and training programme and be approved by The Nautical Institute.
   6.1 Centres that have instructors on a rotation or on-call basis must have a full-time Ballast Control instructor team leader (or supervisor), who will be responsible for updating and reviewing the material annually.
   6.2 The Ballast Control instructor team leader or supervisor must be employed full-time at the centre (or group in case of satellite centres) and be responsible for all other instructors and their continuing training development. 'Full-time' is a person who is employed by the training centre and is responsible for the daily management of the Ballast Control training course and delivering or supervising the delivery of Ballast Control training at the facility.
   6.3 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.

7. Training centres can use instructors from another institution; however, the instructors must meet the requirements set out in items 1, 2, 3 and 4 above.

8. All training centres must develop and put in place a proper annual appraisal (annual performance assessment) for instructors as described below, which shall be recorded in writing.

    8.1 The annual appraisal of all Ballast Control 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, or any other feature that shows continuous professional development. Appraisal can be done by external third parties who are able to assess the teaching methodology and instructor's skill.

9. Grandfather clause for instructors: Training centres that had their Ballast Control instructors approved before 2008 under the grandfather clause will have their instructors' approval reviewed on a case-by-case basis. In addition, Ballast Control Instructors who have been instructing continuously for a period of three years (1,080 days) prior to 2019 may on application to the Nautical Institute be grandfathered and a new instructor certificate issued.

10. Time for Instructor Training: Ballast Control instructor training must be completed within four years of training starting.

11. Informing the Institute of Training Commencement: It is recommended that training centres inform the NI when they start training a new instructor, although this is not mandatory. If this is done, all supporting documentation (certificates, etc) should be provided. Once the training programme is completed, the NI is to be informed and an approval letter requested. It is the responsibility of the training centre to ensure that potential instructors comply with the standards. The Nautical Institute may reject the formal application for approval should any of these requirements not be met.
Note: Only the Training instructor is authorised to sign the Ballast Control record books and certificates during the training programme.

12. New instructors or change of Ballast Control instructors: Training centres that do not report a change of instructor to the NI or that use an instructor who has not been approved by the NI will have their accreditation cancelled pending full audit. Any centre that does not meet all the requirements for instructors may have its accreditation cancelled pending full audit.

Appendix 2.1 Training Programme for New Instructors

No instructor should teach a Ballast Control course accredited by The Nautical Institute until they have completed that course as a student. A new instructor should complete a Ballast Control 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. All elements should be taught under supervision at least once. The rate at which new material is covered should be based on the instructor's competence, agreed with the supervising instructor(s).

Specification of minimum standard of competence for Ballast Control instructors:			
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
General			
Nautical Institute Training Scheme	1. Knowledge of NI Ballast Control training scheme 2. Structure of scheme 3. Knowledge of requirements and guidelines 4. Knowledge of certification requirements, including STCW CoCs and certificates of proficiency	Examination and assessment of evidence from approved training programme	General understanding of NI training scheme
Training centre procedures and quality management	Knowledge and understanding of individual training centre's procedures and quality management systems		Follows procedures and demonstrates general understanding of quality management procedures
Training centre training materials and documentation	1. Knowledge of centre training materials and documentation 2. Ability to use training materials		Competent delivery of training materials

Stability course			
Ballast Control principles	Ability to effectively communicate relevant course aims and objectives	Demonstration of competent delivery	Competent delivery of subject matter and training materials
Elements of Ballast Control system	Ability to effectively communicate relevant course aims and objectives		
Practical operation of Ballast Control system	Ability to effectively communicate relevant course aims and objectives		
Practical operation of Ballast Control system	Ability to effectively communicate relevant course aims and objectives		
Position Reference and 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		
Ballast Control 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 and simulator set-up	Ability to set up and operate effectively centre equipment		Sets up simulation scenarios
Exercise set- up and briefing	Transmits relevant information to students		Communication is clear concise and acknowledged
Delivery of exercise outcomes	1. Knowledge of planning, conduct and execution of Ballast Control operations 2. Knowledge of common Ballast Control operational faults 3. Knowledge of Ballast Control procedures 4. Knowledge of various types of Ballast Control emergency		Competent delivery and facilitation of scenario exercises
Debrief exercises	Transmits relevant information to students		1. Identifies that exercise conforms with accepted procedures 2. Effectively debriefs exercise

A3 Appendix 3 – Ballast Control Classroom Requirements Facilities

Accommodation and transport suitability

A clear booking system must be in place and be part of the administrative procedures.

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

Some training centres include hotel reservations and free transport 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.

Infrastructure

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

1. Buildings, workspace and associated utilities
2. Process equipment (both hardware and software)
3. 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 as well as emergency exits.

Health & safety

Ventilation

Almost all Ballast Control equipment gives off heat, which can build up during the day and become oppressive for users and detrimental to the equipment.

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

Lighting

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

Emergency lighting

This is designated as lighting that operates when the normal light fails and is set up for escape routes to enable effective evacuation of occupied buildings. The emergency lights must be powered from a source independent of that supplying the normal lighting.

The emergency lighting must comply with local regulations and be tested and maintained periodically.

Noise

Poor acoustic conditions in the classroom increase the strain on instructors' voices as most of them find it difficult to cope with high noise levels. Furthermore, noise can disrupt the concentration and attention of students. As a result, the level of sound should be kept to a minimum and comply with local regulations.

Where sound is over 85 decibels, sound insulation, reverberation and indoor noise level control will be required.

Electrical safety

1. Sufficient electrical outlets should be available so that all equipment can be positioned and used safely.
2. 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 equipment or users. Regular visual checks of plug leads and other electrical equipment should be undertaken.
3. 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.

Fire warning systems and exits

1. A fire alarm is required for evacuation and emergency purposes. Students should be notified about possible tests and how and where to proceed in emergency situations before starting classes.
2. Gangways and emergency exits must be marked with proper signage and be kept unobstructed at all times.
3. Appropriate firefighting and first aid equipment should be close to hand and clearly signed.
4. A safety briefing shall be undertaken before the commencement of any course.

Classroom

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

1. As a rule of thumb, each student should be allocated a minimum of 2 square metres.
2. Every classroom should have a clock on the wall for exercises and exams.
3. Every classroom should have a white board or flip chart.

Visual aids

Charts with Ballast Control illustrations are required in the classroom and must be visible to students. In addition, an MOU Operations manual, a MOU stability manual and publications containing relevant documentation and regulations should be provided.

Technical equipment

1. All Ballast Control centres should have the equipment required in the document NI Ballast Control simulator / equipment specification (Appendix E) for the courses they deliver.
2. Additional rooms may be used if the class is split into groups or for the simulator course equipment.
3. For the purpose of conducting the simulator course, the instructor should be positioned in a separate room.
4. The main teaching room should be provided with either a whiteboard or an alternative writing area, such as a flip chart or multimedia facilities.

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.

Computers, furniture and workstations

1. Monitors should tilt and swivel to suit the requirements of individual users.
2. The top of the screen should be roughly at eye level.
3. 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 light changes throughout the day.
4. They should also be cleaned regularly.
5. Users should have the option of using the keyboard flat or tilted.
6. 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 in relation to the equipment. Students need to be able to sit at the recommended height with their eye level at the top of the screen.
7. To achieve the correct posture, the lower arms should be roughly horizontal when working, knees should fit comfortably under the desk with the thighs roughly horizontal and the back should be kept straight.
8. Desks should have enough space around for paper, books and other materials, as well as space for more than one user at a time, and for the instructor to gain access.
9. Centres 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.
10. Desks and chairs shall be kept in good condition and have periodical maintenance with a proper record.

Computers and workstations for online assessment system

The following are required:

1. One computer/workstation per student (1:1 ratio).
2. Workstations shall be separate for each student or have at least one 1 metre of distance between them.
3. Workstations and computers must follow the health and safety requirements stipulated above.
4. There must be internet connection for all computers.

Domestic facilities

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

Toilets

There should be separate toilets for each sex, properly signed and routinely cleaned and maintained. Cleaning and maintenance should be recorded.

The centre should undertake an annual risk assessment of its facilities.

A4 Appendix 4 – NI Ballast Control Simulator/Equipment Specifications

Offshore Ballast Control Simulator Proposed Specifications

General

To be eligible to offer the Nautical Institute Class A Offshore Ballast Control Operator, a training organisation must be able to show the use of a full motion offshore ballast simulator which mirrors the operational and technical parameters of a class of mobile offshore drilling units (MODU).

A class B simulator is considered to be a ballast working station where all rig systems can be monitored but without physical motion.

A class B simulator may be used for basic and advanced courses to show in the class environment how the rig changes trim/list when the ballast is altered and may be used to verify stability calculations.

The following is a minimum requirement for the full-motion simulator.

System Overview

- A tilting table
- The mechanism that drives the table
- The ballast control/jackup and mooring console and mimic panel
- Computer hardware
- Computer software

Functional Specification

The system must replicate in all ways the motions, hydrostatic and hydrodynamic stability and structural characteristics of a mobile offshore drilling rig in a realistic manner in all foreseeable external environmental conditions and in all foreseeable operating emergency and failure mode conditions.

Control Table

The tilting table must be capable of reproducing the movements of an offshore semi-submersible drilling rig in a realistic manner in all foreseeable external movement conditions and in all foreseeable operating emergency and failure mode conditions. Due to mobile nature of the tilting table a design must include safety feature to ensure the participants are subjected possible trips and falls during the motion i.e. safety belts on control chair.

Ballast Control Console

The ballast control console with full operator control and monitoring functions shall be available through conventional operator interface and visual displays. The console shall include a communications panel for radio traffic via VHF and a rig network. A speaker shall be installed for simulated background noise, as shall a PA system.There must be display of roll and pitch trends.

Alarms and other audible distractions shall also be located within the control cabin.

There must be display of roll and pitch trends.

There must be display of basic stability parameters such as GM, displacement, KG margin and skew forces.

Mooring Control Panel

This shall be situated within the ballast control cabin and be a fully operable mooring control and monitoring panel, incorporating simultaneous tension and line information of all anchors and cables.

CCTV system

It is recommended that there be access during simulation to a CCTV system to oversee pumproom and thruster rooms. The camera should be able to move around, zoom in and zoom out in a 3D environment. Quality of 3D graphics should allow participants to recognise flooding and fire upon inspecting the space in question via a CCTV camera.

Instructor Control Cabin

A fully equipped instructor facility shall be enclosed in a separate compartment with full command, control, monitoring and communication facilities. This shall include a communications panel for outgoing and incoming transmissions, incorporating VHF, telephone, background noise and PA. Included in this facility shall be a remote screen monitoring facility with multiple screen options reflecting the student screens and giving the instructor control of the training exercises.

Slave Display Panel with Separate Communications Panel

A slave display panel that replicates the condition of the operator's controls shall be provided for students not active in the Ballast Control room to review actions generated during the exercise. The provision of communications equipment will also allow students to participate in the exercise.

Instructor Control Facility

To include but not limited to the following:

- Variable water depths
- Pre-determined rig conditions
- Real-time and accelerated time options
- Exercise freeze facility
- Exercise save facility
- Exercise recall facility

Instructor Control Facility – Environmental Conditions

The instructor shall have full control and monitoring of environmental inputs to include but not be limited to:

- Wind speed and direction
- Significant and maximum wave heights and directions, including wind waves and swell parameters
- Surface current speed and direction
- Atmospheric variables such as air temperature and pressure

Instructor Control facility – Operation and Mooring Conditions

The instructor shall have full control and monitoring of the mooring system, to include but not be limited to the following:

- Line out length, line tensions and touchdown points, etc
- Single- and double-line failures
- Maximum winch-pulling tension

Instructor Control Facility – Tanks, Spaces, Pipelines and Cargo/Equipment Loading

There shall be full control and monitoring of all rig tanks and other compartments such as: ballast, fuel, drill water, bulk chemicals, mud pits, pump rooms and thruster rooms, to include but not be limited to the following:

- Quantities and percentages of capacity
- Fill and consumption rates
- Structural failures between compartments, e.g. separation bulkheads

There shall be full control of all rig valves including but again not limited to the following:

- The status, opening and closing rates and any valve restrictions

There shall be full control and monitoring of all rig pumps including:

- Status
- Suction pressure
- Discharge pressure
- Flow rates

There shall be full control and monitoring of rig deck loads and cargo tanks to include but not be limited to:

- Status
- Load and discharge rates
- Deck load transfer by crane etc.

There shall be simulation of full control and monitoring of all rig bilge alarms, including but not limited to:

- Status
- Variable bilge alarm levels
- High and low levels
- Alarm set points
- Current bilge levels
- Current bilging inflow rates etc.

There shall be full control and monitoring of all known and realistic damage conditions, e.g.

- Realistic water ingress and escape theory equated to outside water levels.
- Reproduction of real effect of hydrostat ic head etc.

There shall be (if available) monitoring of crane operations to include:

- The use of cranes, operating at capacity and full movement rate of slew, jib angle etc.
- The ballast control room shall mirror an authentic ballast control room on a MODU.

A5 Appendix 5 – Administration Requirements

General

1. The centre shall have a licence document showing that it is legally eligible to operate as a training centre.
2. Joint-venture agreements between a training centre and satellite centres or between two independent companies shall be required by The Nautical Institute for analysis prior to the accreditation visit. No financial information is required by The Nautical Institute.
3. Each centre must have a stamp with that centre's name and logo to be used for stamping record books. Ballast Control 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.

Course Booking System

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

Training centres are required to ask for the Certificate of Competency (CoC) or the work experience references of their students before accepting them into the Ballast Control Basic Stability course and Ballast Control scheme. An electronic copy of the STCW CoC or the work experience references for each student shall be kept in files for audits.

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

The Certificate of Competency number should be noted and properly recorded by the centre in the student records of personal information as per the centre's procedures.

Process and Procedures

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:

1. Course information
2. Enquiries, contracts or order handling, including amendments
3. 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.

Human Resources

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's administration procedures.

Competence

The centre shall have a system in place to:

1. Determine the necessary competence for personnel performing the training
2. Provide training or take other actions to satisfy these needs
3. Evaluate the effectiveness of the actions taken
4. 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

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.

Feedback System

Customer focus

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

Customer feedback system

Feedback forms are intended to assess the general quality of the course, its content, teaching method, instructors, facilities and infrastructure, as well as the helpfulness and professionalism of staff. The feedback about instructors and related course information shall be used as part of their annual appraisal and to improve course and teaching.

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 Ballast Control training scheme, including policies and objectives.

The review documents must include information on:

1. Result of audits
2. Customer feedback
3. Process performance and equipment conformity
4. Status of preventive and corrective actions
5. Follow-up actions from previous management reviews
6. Changes that could affect the quality management system
7. Recommendations for improvement

The outputs expected from the reviews include:

1. improvement of the effectiveness of the documentation and communication process
2. improvement of pass marks from students
3. reduction in customer complaints

Complaints and Appeals

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

Documentation Control

General

1. Company policies and staff handbook should be properly documented.
2. 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.

Control of documents

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.

Documented procedures shall be established to define the controls needed:

1. To approve documents prior to issue
2. To review and update as necessary and re-approve documents
3. To ensure that changes and the current revision status of documents are identified
4. To ensure that relevant versions of applicable documents are available at points of use
5. To ensure that documents remain legible and readily identifiable
6. To prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

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 three years from the date of the NI audit, whichever is longer. Electronic or cloud-based storage with suitable backup is acceptable but paper copies must be retained in a secure environment.

Equipment Maintenance Records

The training centre is required to maintain the Ballast Control 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.

A6 Appendix 6 – Training Provider Annual Report

As centres are not audited yearly, an annual report is required from all centres accredited by The Nautical Institute. This deadline is 31 January of each year. The report should include, as a minimum, the following:

Training Provider Annual Report

A. CONFIRMATIONS
1. Date on which report was filed with NI
2. Year to which report refers
3. Centre name in full. (This should be the official registered name)
4. Address
5. Date last audited and accreditation or reaccreditation certificate number with validity
6. Type of simulators currently in use
7. Name of contact person, date of birth, NI customer number, Ballast Control Certificate Number (if applicable), nationality, rank in the company, email address, alternative email address, phone and mobile number
8. Comments on any changes in administrative or commercial set-up
9. Date of last attendance of applicable RTP Meeting
B. DETAILS OF CHANGES
10. Details of any changes to address, telephone number etc during the year
11. Details of any changes in facilities, classrooms, equipment, simulator etc
C. INSTRUCTORS and LOGBOOK SIGNATORIES
12. Details of any changes of instructors, CVs, training programmes etc
13. Current List of NI Approved Instructors with dates of approval letters
14. 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.)
D. STUDENTS, DETAILS OF COURSES AND RESULTS
15. Full list of ALL accredited Ballast Control courses run for the year (1 January to 31 December), dates, instructor's name, names of students, nationality, date of birth, NI Log book number, IMCA Log Book Number (if applicable), marks achieved, result and certificate number if any. This may be sent as an attachment in a tabulated format.
16. Summary of feedback and evaluation from students for all accredited Ballast Control courses. This may be sent as an attachment in a tabulated format.
F. REMARKS AND COMMENTS
17. List of other courses held at the centre (Non-Accredited Ballast Control Courses)
18. Outline of planned developments
19. Any comments for NI Evaluation

A7 Appendix 7 – Accreditation

Definitions

Accreditation is defined by The Nautical Institute 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 Nautical Institute with industry stakeholders.

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

To verify is to prove the truth of 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 adequate or satisfactory.

A training centre wishing to offer Ballast Control courses formally applies to The Nautical Institute. The Institute sends auditors to assess the courses delivered by that training provider to verify that they meet the standards described in this document. The recommendation of the audit team will be discussed by the NI Accreditation Team and if the decision is made to approve the courses the Institute will accredit that centre.

What Is Accredited?

Ballast Control Operator (Ballast Control) Course

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

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

Accreditation may be granted for basic and advanced courses only after suitable audit.

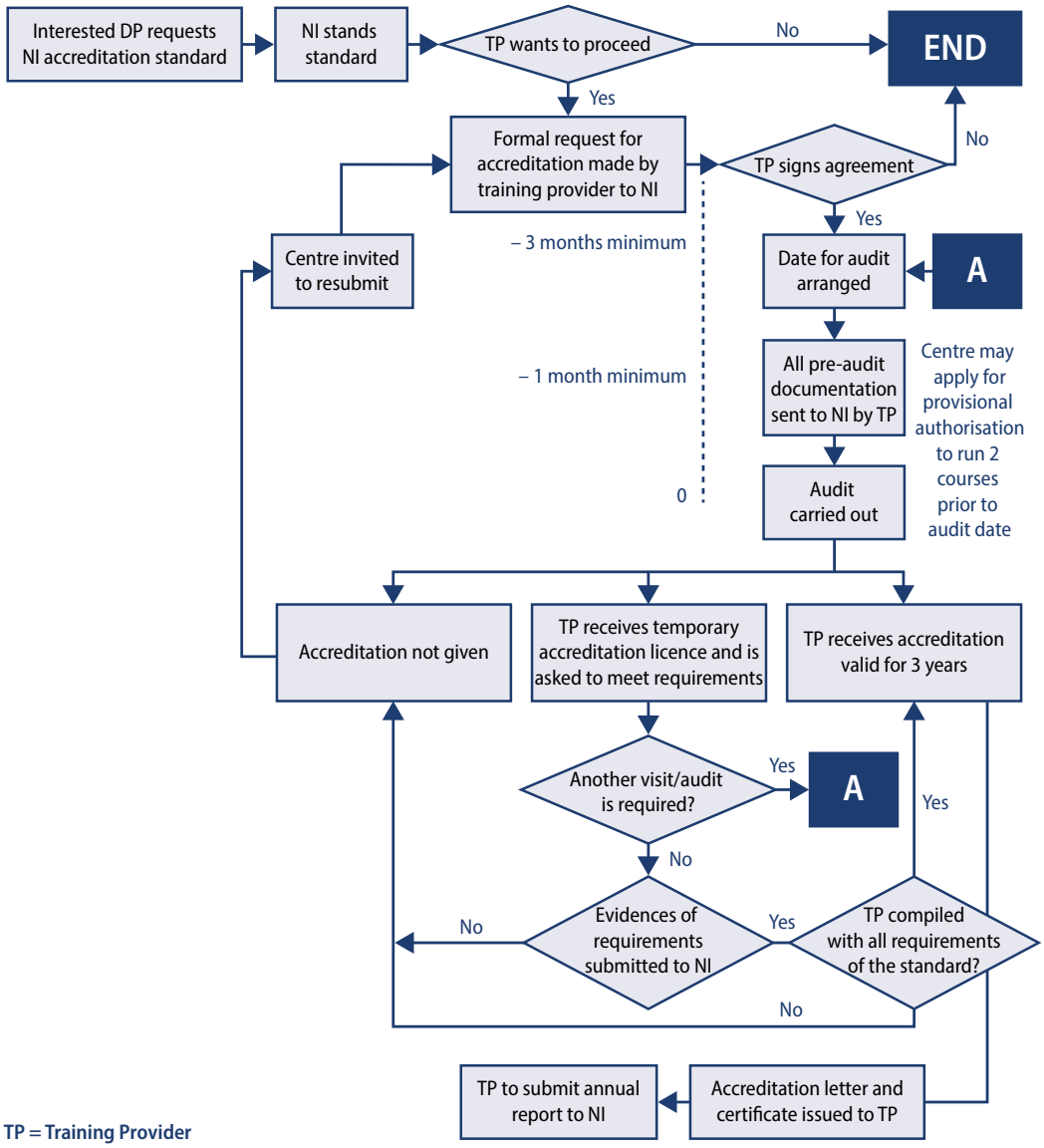
Simulator Course

This course principally involves simulated Ballast Control operations including errors, faults and failures, giving the participants the opportunity to apply the lessons learnt in both the Basic Stability course and the time spent during seagoing Ballast Control familiarisation. It covers the following topics:

- Practical operation of the Ballast Control system
- Ballast Control operations
- Ballast Control alarms, warnings and emergency procedures

During the process of accrediting a training centre to deliver the above courses, the Institute's auditors 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.

Overview of The Nautical Institute Accreditation Process



TP = Training Provider

Description of The Nautical Institute Accreditation Process

Interested training provider requests accreditation standard

Any person/s interested in opening a Ballast Control training centre can request a copy of this document, which is also available on the NI Alexis Platform website.

The Nautical Nstitute Sends Standard

Potential training provider decides to pursue accreditation

A training provider wishing to seek Nautical Institute accreditation can do so by contacting the Institute's Accreditation team and following this contact with a formal written request for accreditation.

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 centre
- The name of the course or programme (Basic Stability, Advanced Stability and Practical Simulator).
- Description and layout of the equipment
- CVs including photos and Ballast Control certificates of instructors
- A copy of each instructor's training programme signed off by an experience training Ballast Control instructor (see definition in Appendix C/1)

Timing of the request

The Institute 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 good time.

Accreditation agreement

Before progressing any further along the accreditation process, the training provider must sign an Accreditation agreement with The Nautical Institute.

Setting an audit date

The Institute and the training centre will agree a date for the audit based on availability of auditors and the schedule of courses at the centre. The audit (for new accreditation or re-accreditation) 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 as well as the teaching methodology and other elements of the course.

The auditors

A trained auditor linked to the Institute's administrative staff will audit the centre's administrative, management and course delivery procedures. Additional specialist assessors may be called in when appropriate.

Auditors 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 Institute
- 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 the appropriate permissions
- Return all training materials received from a centre either to the centre or the Institute
- Act in the best interest of The Nautical Institute and in accordance with good professional conduct

Documentation to Submit to The Nautical Institute Prior to the Audit

The assessors will receive the following documentation a **minimum** of six weeks before the audit takes place:

- Instructor's manual for each course, including course timetable, lesson plans for each module and copies of PowerPoint presentations
- Student handouts and materials
- Licence to operate a centre from the relevant local or national authority
- CVs including photos and Ballast Control certificates of instructors
- A copy of each instructor's training programme signed off by an experienced Ballast Control instructor
- Copy of train the trainer or teaching certificate
- Health and safety information
- Attendance list, feedback forms and methods for assessing students
- Example certificates
- Administration procedures to cover registration and booking, record book 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 Institute may cancel the arranged audit, with the resulting loss (travel, accommodation costs, etc) borne by the training centre. To maintain a high audit standard, the NI auditors need time to review documentation before arriving at the centre.

The Audit Plan

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

- **Pre-audit:** All materials submitted to the Institute 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 given to the centre by email, followed up by formal letter.

The Decision to Accredit

The Nautical Institute will write formally to award accreditation. The response will be one of three levels:

- Accredited: the centre will be accredited to deliver courses for three years and will be required to submit annual reports to the Institute 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. 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 Institute throughout this period.
  - Major improvements: the centre will be accredited on completion of significant improvements, which must be confirmed by due dates. The centre may have to suspend the delivery of courses until these improvements are in place. 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 Institute.
- Failure with reasons and invitation to re-submit.

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 Nautical Institute)
- Bankruptcy, receivership or liquidation of the accredited training provider or their parent organisation
- Failure to notify the Institute 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 Nautical Institute'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 books or logbooks for over 90 days.

Recognition and Certification

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

The Cost of Assessment

The Nautical Institute will carry out the assessment at full cost recovery plus administrative overheads. Typical costs are as follows:

- Pre-course assessment, reviewing documentation – one person-day
- Course assessment – one person-day x 2
- Simulator assessment (where applicable) one person day x 1
- Travel and accommodation as relevant
- Expenses, taxis, meals if relevant
- Follow-up action, providing certification etc – one person-day
- Any local tax

An annual levy is made for continued membership of the scheme. The actual cost of an accreditation visit will be given on request.

Further details are provided in the accreditation agreement.

Changes to Location or Simulator

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

Spot Audits

The Nautical Institute retains the right to visit any accredited training centre with a minimum 24 hours' notice to carry out a spot audit for the purpose of maintenance of accreditation standards.

Bribery Act 2010

The Nautical Institute, being a charity registered in the UK, is subject to the UK Bribery Act 2010.

The Bribery Act 2010 is an Act of Parliament of the United Kingdom that covers the criminal law relating to bribery. It entered into force on 1 July 2011. The Act repeals all previous statutory and common law provisions in relation to bribery, replacing them with the crimes of bribery, being bribed, the bribery of foreign public officials and the failure of a commercial organisation to prevent bribery on its behalf. The penalties for committing a crime under the Act are a maximum of 10 years' imprisonment, along with an unlimited fine, and the potential for the confiscation of property under the Proceeds of Crime Act 2002, as well as the disqualification of directors under the Company Directors Disqualification Act 1986. The Act has a near-universal jurisdiction, allowing for the prosecution of an individual or company with links to the United Kingdom, regardless of where the crime occurred.

Harmonisation of Standards

The policy of The Nautical Institute 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 used for each section.

The Nautical Institute's Quality Standards and Audit Procedure

The procedures in this standard have been approved by the Institute's Executive Board. The Board is kept informed of Ballast Control accreditation activities and keeps the accreditation and certification process under review.

A8 Appendix 8 – Complaint/Appeal Procedure

General enquiries and correspondence related to the Ballast Control Accreditation Standard should be directed to The Nautical Institute using the contact details below:

Qualifications Marine & Offshore Department
The Nautical Institute
200B Lambeth Road, London, SE1 7JY United Kingdom
Email: accreditations@nautinst.org
Tel: +44 (0) 20 7928 1351

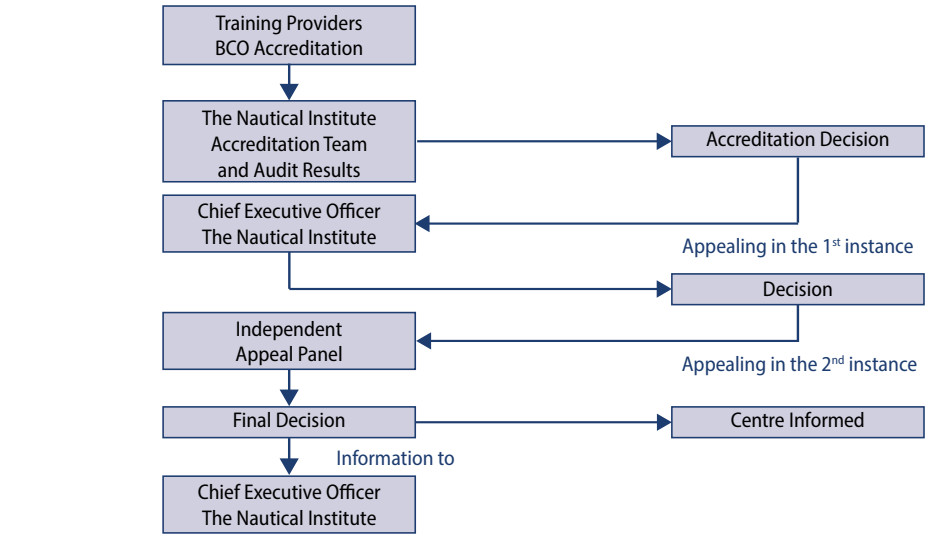
Complaints and disputes related to the Ballast Control Accreditation Standard should be directed to The Nautical Institute using john.lloyd@nautinst.org. Acknowledgements will normally be made within five working days and a response given within a further 10 working days. Matters escalated beyond the Accreditation and Training Department will be dealt with in accordance with the governance structure depicted on the next page.

Decisions supported by the Independent Panel, as set out on the next page, 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. This cost will be borne by the training centre as per the Accreditation agreement.

General Instructions for the Appeal Processes

1. Ballast Control stakeholders will provide up to 5 names, CVs and contact details from their members to the Nautical Institute to compose the Appeal Panel list.
2. Where the Independent Appeal Panel is needed, The Nautical Institute will select 3 names from the Panel list, avoiding any obvious conflicts of interest. The Institute 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 are confirmed, the independent persons will be required to sign a confidentiality agreement with The Nautical Institute to ensure that no data will be shared outside the investigation and appeal process.
4. Once the confidentiality agreement is signed, the NI will confirm the Panel composition and share the documents in the case with panellists.
5. The Panel will have 45 days from the date on which documents are shared to assess the case and provide its final report with final decision to The Nautical Institute.
6. The Panel may meet physically or through electronic means, whichever is deemed most convenient by the members.
7. Panellists should agree on a Chairman from their number. They should 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.

Accreditation appeal process



A9 Appendix 9 – Comprehensive Stability Knowledge

Required topics of instruction for the comprehensive course of instruction:

1. Hydrostatic properties, Hydrostatic Property Information, Draft, Displacement, Height of the Centre of Buoyancy (KB) or Vertical Centre of Buoyancy (VCB), Longitudinal Centre of Buoyancy (LCB) and Transverse Centre of Buoyancy (TCB), The Waterplane Area (WPA), Tons Per Inch (TPI)— Tonne per cm (TPC), Longitudinal Centre of Flotation (LCF) and Transverse Centre of Flotation (TCF), The Height of the Longitudinal Metacentre (KMl) and Transverse Metacentre (KMt), Moment to Heel or Trim 1° (MH1°–MT1°). Moment to Trim or Heel 1 cm (MCT–MCH)
2. Free surface effect, The Free Surface Effect on Stability, Calculation of the Loss of GM caused by the Free Surface Effect, The Effect of Added Bulkheads in Tanks on the Free Surface Effect
3. Form BCS-01 Revision 060307
4. The Tank Tables with Free Surface Moment, Wet and Dry GM
5. Stability calculations on board, Loading Conditions, Mooring System Correction, The Maximum Allowable Area Loading, The Stability Calculations on Daily Report Forms; Tank Capacity Tables and Curves.

Understanding of fundamental principles, theories and factors affecting trim and stability and measures to preserve trim and stability:

- Centre of Gravity (G), The Centre of Buoyancy (B), The Metacentre (M), The Height of the Metacentre (KM), The Stability Couple, The Metacentric Height (GM), The Righting Arm (GZ), The Righting Moment, Heeling and Lolling, Hog and Sag, Stable Equilibrium, Neutral Equilibrium, Unstable Equilibrium, Stiff and Tender, Rolling Period, Transverse Versus Longitudinal Stability, Categories of Stability
- Change of Draft, Heel, and Trim, Mean Draft (MD), True Mean Draft (TMD), Change of Draft (COD), Change of Trim (COT)—Change of Heel (COH)
- Static and Dynamic Stability Criteria for MOUs, Environmental Limits and Criteria for Survival Conditions
- The calculations for Centre of Gravity (G), Centre of Buoyancy (B) and Metacentre (M), The Effect of Weight Shifts on the Centre of Gravity (G), Recapitulation of Shift of Centre of Gravity, The Position of the Centre of Buoyancy (B) and the Metacentre (M) in Relation to K, The Effect of Draft on the Centre of Buoyancy (KB), Inertia, Calculation for BM
- Calculation for GM, Calculation for List and Trim in Degrees, Summary of Static Stability for Small Angles
- Stability at large angles—stability curves, Intact Statical Stability, Large Angles, The Curve of Statical Stability, The Cross Curves of Stability, Use of Cross Curve of Stability, The Curve of Righting Moments, Dynamic Stability, Damage Stability, Basic Damage Stability Procedures, The Down- Flooding Angle, The Maximum Allowable Vertical Centre of Gravity (VCG)
- Understanding of inclining experiment, deadweight and their use
- The Inclining Experiment, The Preparation of the Inclining Experiment, The Principle of the Inclining Experiment, The Inclining Experiment Calculation, Lightship and variable loading, Tracking cumulative changes to lightship condition

Use of daily loading calculations. Knowledge of the Effect of:

- Trim and stability of MOUs in event of damage and consequent flooding and countermeasures. Intact Statical Stability Large Angles, Basic Damage Stability Procedures, The Down-Flooding Angle, Effects of tanks or spaces open to the sea and free communication between tanks or spaces within the unit
- Movement or offloading supplies or equipment and ballasting of MOUs in order to keep the unit's stress within the acceptable limits. Should include basic discussion and explanation of the following: The Maximum Allowable Area Loading, Forces Working on the Floating Unit, Stress, Strain and Yield, Fatigue, Shear Stress, Sagging and Hogging, Design Loading Conditions, Steel Quality and High-Strength Steel, Member Loading and Stress, Fatigue in Members and Connections, Load Curves on Drilling Vessels, torsional stress on semi-subs including ballast sequence for ballasting to drilling draft and de-ballasting to transit/survival draft.
- Mooring system. Mooring System Components and Purpose, The Anchor System Correction, Use of Catenary Curve Tables, Vertical Component of Line Tension, Lightweight Correction for Deployed Chain, Environmental Forces & Offset, Effects of Line Failures
- Loss of buoyancy, Definition of Damage Stability, Causes of Damage Stability, Consequences of Damage Stability, Permeability, Reserve Buoyancy and Damage Stability, Watertight Integrity Calculation of Damage Stability, The Added Weight Method, The Lost Buoyancy Method Comparison Between Added Weight and Lost Buoyancy Methods, The Stability Curve for Damage Stability, Damage Control Procedure, Damage Stability Calculation on Board
- Critical moment, which occurs when the pontoons disappear just under the water. This is known as critical draft, the effect of trimming vessel by the stern to reduce the effect. (Horizontal bracings do not then submerge/de-submerge together.)
- The emergency response for flooding due to damage, firefighting, loss of buoyancy and the effect on trim and stability. Basic Damage Stability Procedures, Hazards Associated with Counter Flooding, The Down-Flooding Angle.
- Countermeasures for damage stability, Basic Damage Stability Procedures, The Down-Flooding Angle.
- Effectively communicate stability-related information: Loading Conditions, The Anchor System Correction, The Maximum Allowable Area Loading, The Stability Calculations on Daily Report Forms.