

**Economic and Social Council**Distr.: General
4 December 2019

Original: English

Economic Commission for Europe**Inland Transport Committee****Working Party on Inland Water Transport****Working Party on the Standardization of Technical
and Safety Requirements in Inland Navigation****Fifty-sixth session**

Geneva, 12–14 February 2020

Item 10 of the provisional agenda

**Mutual recognition of boatmasters' certificates and harmonization
of professional requirements in inland navigation****Revision of resolution No. 31: Standards of competence for
the management level****Transmitted by the European Committee for drawing up standards in
the field of inland navigation*****Mandate**

1. This document is submitted in line with the Proposed Programme Budget for 2020, part 5, Regional cooperation for development, section 20, Economic Development in Europe. Programme 17, Economic Development in Europe (A/74/6 (Sect. 20) and Supplementary).
2. At its fifty-fourth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation decided to consider updating the Recommendations on Minimum Requirements for the Issuance of Boatmaster's Certificates in Inland Navigation with a view to their Reciprocal Recognition for International Traffic (resolution No. 31, revised) and asked the secretariat to hold consultations with the European Committee for drawing up standards in the field of inland navigation (CESNI) on this issue (ECE/TRANS/SC.3/WP.3/108, paras. 37-38).
3. In 2018, CESNI adopted a set of standards for qualifications in inland navigation professional requirements, called the European Standard for Qualification in Inland Navigation (ES-QIN) ** which complement Directive (EU) 2017/2397 on the recognition of professional qualifications in inland navigation. The annex to this document contains the newly adopted standards of competence for the management level,*** transmitted by the CESNI secretariat to be used as the basis for updating resolution No. 31 (see the annex).

* This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

** www.cesni.eu/en/documents/es-qin-2018.

*** See ES-QIN, Part I "Standards for competences", chapter 2.



Annex

**Standards of competence for the management level
(Resolution CESNI 2018-II-4)**

0. Supervision

The boatmaster shall be able to instruct other deck crew members and supervise the tasks they exercise, as referred in Section 1 of Annex II to Directive (EU) 2017/2397, implying adequate abilities to perform these tasks.

Persons willing to qualify as a boatmaster shall demonstrate the competences listed in the following Sections 0.1 to 7.4 unless they have taken one of the following steps:

1. completed an approved training programme based on the standards of competence for the operational level;
2. passed an assessment of competence by an administrative authority aimed at verifying that the standards of competence for the operational level are met.

0.1 Navigation

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
<ol style="list-style-type: none"> 1. demonstrate mooring, unmooring and hauling (towage) operations; 	<ol style="list-style-type: none"> 1. Knowledge of equipment, material and procedures used for mooring, unmooring and hauling (towage) operations. 2. Ability to use materials available on board such as winches, bollards, ropes and wires considering relevant work safety measures including the use of personal protective and rescue equipment. 3. Ability to communicate with the wheelhouse using intercom communication systems and hand signals. 4. Knowledge of the effects of water movement around craft and local effects on sailing circumstances including the effects of trim, shallow water relating to craft’s draught. 5. Knowledge of the water movement affecting the craft during manoeuvring including the interaction effects when two craft pass or overtake each other in narrow fairways and the interaction effects on a craft moored alongside when another craft proceeds in the fairway and passes at a short distance.
<ol style="list-style-type: none"> 2. demonstrate coupling operations of push barge combinations; 	<ol style="list-style-type: none"> 1. Knowledge of equipment, material and procedures used for coupling operations. 2. Ability to connect and disconnect push/barge combinations using the required equipment and materials. 3. Ability to use equipment and materials available on board for coupling operations considering relevant work safety measures including the use of personal protective and rescue equipment. 4. Ability to communicate with deck crew members involved in coupling operations of push barge combinations.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
3. demonstrate anchoring operations;	<p>1. Knowledge of equipment, materials and procedures used for anchoring operations.</p> <p>2. Ability to demonstrate anchor manoeuvres: prepare anchor equipment for anchoring operations, presenting anchor, giving sufficient amount of cable or chain to veer initially and to determine when the anchor holds the craft at its position (anchor bearing) and to secure anchors on the completion of anchoring and to use dragging anchors in various manoeuvres and to handle the anchor signs.</p> <p>3. Ability to use equipment and materials available on board for anchoring operations considering relevant work safety measures including the use of personal protective and rescue equipment.</p> <p>4. Ability to communicate with the wheelhouse using intercom communication systems and hand signals.</p>
4. take appropriate actions for safety of navigation;	<p>1. Ability to immediately warn the craft's crew and to use personal protective and rescue equipment.</p> <p>2. Ability to secure the water tightness of the craft.</p> <p>3. Ability to demonstrate and to execute the work according to the checklist on deck and in the living quarters such as waterproofing and securing of the hatches and holds.</p>
5. describe the various types of locks and bridges in relation to their operation;	<p>1. Knowledge of the shape, layout and facilities of locks and bridges, lockage (locking process), types of lock gates, bollards and stairs, etc.</p> <p>2. Ability to explain and demonstrate the applicable procedures to deck crew member while passing locks, weirs and bridges.</p>
6. respect the general provisions, signals, signs and marking system.	<p>1. Knowledge of police regulations applying to the relevant inland waterways.</p> <p>2. Ability to handle and maintain the craft's day and night marking system, signs and sound signals.</p> <p>3. Knowledge of buoyage and marking system according to SIGNI and IALA part A.</p>

0.2 Operation of the craft

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. distinguish various types of craft;	<p>1. Knowledge of the most common types of craft including convoys used in European IWT and their corresponding construction, dimensions and tonnages.</p> <p>2. Ability to explain the characteristics of the most common types of craft including convoys used in European IWT.</p>
2. apply knowledge of the documentation required for the craft's operation.	<p>1. Knowledge of the craft's obligatory documentation.</p>

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
	2. Ability to explain the importance of documentation in relation to international and national requirements and legislation.

0.3 Cargo handling, stowage and passenger transport

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. explain European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), labelling and passenger transport safety procedures;	1. Ability to explain ADN labelling of dangerous goods. 2. Ability to explain the passenger transport safety procedures including application of Regulation (EU) No 1177/2010. 3. Ability to communicate effectively with passengers.
2. explain and demonstrate the use of the ballast system;	1. Knowledge of the function and use of the ballast system. 2. Ability to explain the use of the ballast system for example by filling or emptying the ballast tanks.
3. check the amount of cargo.	1. Knowledge of manual and technical methods of determination of the cargo weight on various types of craft. 2. Ability to use methods to determine the amount of cargo loaded or discharged. 3. Ability to calculate the amount of liquid cargo using the soundings and/or tank tables.

0.4 Marine engineering and electrical, electronic and control engineering

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. operate machinery including pumps, piping systems, bilge and ballast systems;	1. Knowledge of procedures to follow for safe operation of machinery and of the bilge and ballast system as well as of correct waste disposal. 2. Ability to operate and control the machinery in the engine room following procedures. 3. Ability to explain safe function, operation and maintenance of the bilge and ballast system including: reporting incidents associated with transfer operations and ability to correctly measure and report tank levels. 4. Ability to prepare and operate shut-off-operations of the engines after operation. 5. Ability to operate pumping bilge, ballast and cargo pumping systems. 6. Ability to explain the necessity to collect, store and deliver waste products in a correct and safe manner. 7. Ability to use hydraulic and pneumatic systems.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
2. prepare, start, connect and change generators and control their systems and shore supply;	<ol style="list-style-type: none"> 1. Knowledge of the power installation. 2. Ability to use switchboard. 3. Ability to use shore supply.
3. use required tools and materials;	<ol style="list-style-type: none"> 1. Knowledge of characteristics and limitations of processes and materials and tools used for maintenance and repair of engines and equipment. 2. Ability to apply safe working procedures.
4. perform the daily maintenance work on the main engines, auxiliary machinery, and control systems;	<ol style="list-style-type: none"> 1. Ability to maintain and to take care of the engine room, main engine, main machinery, auxiliary equipment and control systems.
5. perform the daily maintenance work on machinery including pumps, piping systems, bilge- and ballast systems.	<ol style="list-style-type: none"> 1. Ability to maintain and to take care of pumps, piping systems, bilge- and ballast systems.

0.5 Maintenance and repair

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. protect health and environment when performing maintenance and repair;	<ol style="list-style-type: none"> 1. Knowledge of applicable cleansing and preserving procedures and rules of hygiene. 2. Ability to clean all accommodation spaces, the wheelhouse and keeping the household in a proper way complying with the rules of hygiene including responsibility for their own accommodation space. 3. Ability to clean the engine rooms and engines using the appropriate cleansing materials. 4. Ability to clean and to preserve the outer parts, the hull and the decks of the craft in the correct order using the appropriate materials according to environmental rules. 5. Ability to take care of the craft and household waste disposal according to environmental rules.
2. maintain technical devices according to technical instructions;	<ol style="list-style-type: none"> 1. Knowledge of technical instructions for maintenance and repair programmes. 2. Ability to maintain and take care of all technical equipment according to technical instructions. 3. Ability to use maintenance programmes (including digital) under supervision.
3. safely handle wires and ropes;	<ol style="list-style-type: none"> 1. Knowledge of characteristics of different types of ropes and wires. 2. Ability to use and store them according to safe working methods and rules.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
4. make knots and splices according to their use and maintain them.	<ol style="list-style-type: none"> 1. Knowledge of procedures to follow in order to ensure safe towage and coupling with means available on board. 2. Ability to splice wires and ropes. 3. Ability to apply knots according to their use. 4. Ability to maintain wires and ropes.

0.6 Communication

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. present facts using technical terms.	<ol style="list-style-type: none"> 1. Knowledge of the required technical and nautical terms as well as terms related to social aspects in standardised communication phrases. 2. Ability to use required technical and nautical terms as well as terms related to social aspects in standardised communication phrases.

0.7 Health and safety and environmental protection

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. apply rules for the safety at work and prevention of accidents;	<ol style="list-style-type: none"> 1. Knowledge of safe working methods. 2. Knowledge of the nature of on board hazards. 3. Ability to prevent dangers related to on board hazards, for example: <ul style="list-style-type: none"> movements of the craft, provision of safe embarkation and of disembarkation the craft (e.g. gangplank, ship's boat), safely stow movable objects, working with machinery, recognizing electric hazards, fire precautions and firefighting, professional use of hand tools, professional use of portable power tools, compliance with health and hygiene, removal of slip, fall and tripping hazards. 4. Knowledge of the relevant health and safety working instructions during activities that take place on board. 5. Knowledge of applicable regulations concerning safe and sustainable working conditions.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
	<p>6. Ability to prevent activities which might be hazardous to personnel or craft, for example:</p> <ul style="list-style-type: none"> loading or unloading cargoes, mooring and unmooring, working aloft, working with chemicals, working with batteries, during presence in engine-room, lifting loads (manually and mechanically), entry into and working in enclosed spaces.
<p>2. use personal protective equipment to prevent accidents;</p>	<p>1. Knowledge of procedures to use the required equipment for safe working on board.</p> <p>2. Ability to use personal protective equipment, for example:</p> <ul style="list-style-type: none"> eye protection, respiratory protection, ear protection, head protection, protective clothing.
<p>3. swim and assist in the case of rescue operations;</p>	<p>1. Ability to use swimming skills for rescue operations.</p> <p>2. Ability to use rescue equipment in the case of rescue operations.</p> <p>3. Ability to rescue and transport a casualty.</p>
<p>4. use emergency escape routes;</p>	<p>1. Knowledge of procedures to follow in an evacuation situation (according to local features on board).</p> <p>2. Ability to keep escape routes free.</p>
<p>5. use internal emergency communication and alarm systems;</p>	<p>1. Ability to use emergency communication and alarm systems and equipment.</p>
<p>6. distinguish the elements of a fire and types and sources of ignition;</p>	<p>1. Knowledge of the possible causes of fire during different activities as well as classification of fires according to the European standard EN or equivalent.</p> <p>2. Knowledge of the elements of the combustion process.</p> <p>3. Ability to apply the basics of firefighting procedures.</p>
<p>7. distinguish and use different types of fire extinguishers;</p>	<p>1. Knowledge of different characteristics and classes of fire extinguishers.</p> <p>2. Ability to apply various methods of firefighting and extinguishing equipment and fixed installations for example:</p> <ul style="list-style-type: none"> classes of fire extinguishers, use of different types of portable extinguishers, influence of wind while approaching the fire.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
8. perform medical first aid.	<p>1. Knowledge of general principles of first aid including appreciation of body structure and functions on board a craft after assessment of a situation.</p> <p>2. Ability to maintain physical and mental condition and personal hygiene in the case of first aid.</p> <p>3. Knowledge of relevant measures in the case of accidents in accordance with recognized best practices.</p> <p>4. Ability to assess needs of casualties and threats to own safety.</p> <p>5. Ability to perform required measures in cases of emergency, including to:</p> <p>position casualty,</p> <p>apply resuscitation techniques,</p> <p>control bleeding,</p> <p>apply appropriate measures of basic shock management,</p> <p>apply appropriate measures in the event of burns and scalds, including accidents caused by electric current,</p> <p>rescue and transport a casualty.</p> <p>6. Ability to improvise bandages and materials in emergency kit.</p>

1. Navigation

1.1 The boatmaster shall be able to plan a journey and conduct navigation on inland waterways including being able to choose the most logical, economic and ecological sailing route to reach the loading and unloading destinations taking into account the applicable traffic regulations and agreed set of rules applicable in inland navigation.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. navigate on European inland waterways including locks and lifts according to navigation agreements with agent;	<p>1. Knowledge of national and international waterways used by inland navigation, geographical location of rivers, canals, seaports, inland harbours and the relationship with cargo flows.</p> <p>2. Knowledge of Conference of the European ministers of transport (CEMT) classification of inland waterways, dimensions of the waterway in relation to craft dimensions using modern information systems.</p> <p>3. Ability to calculate with water levels, depth and (air) draught using relevant information sources.</p> <p>4. Ability to calculate distances and sailing time using information sources concerning distances, locks, restrictions and sailing speed or time.</p> <p>5. Knowledge of liability and insurance.</p>

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
2. respect and apply traffic regulations applicable to navigation on inland waterways to avoid damage;	6. Ability to instruct crew members and shipboard personnel to perform tasks in a safe way. 1. Knowledge of the rules of the road such as the agreed set of rules applicable in inland navigation for the inland waterway which is being sailed to avoid damage (e.g. collision). 2. Ability to apply relevant traffic regulations applicable to the waterway which is being sailed.
3. consider economic and ecological aspects of the craft operation in order to use the craft efficiently and respect the environment;	1. Knowledge of the environmental aspects when sailing on inland waterways. 2. Ability to perform environmentally sustainable and economical navigation with regard to e.g. fuel efficiency, bunkering, emission levels, shallow water effects, connection to shore electricity and waste management.
4. take account of technical structures and profiles of the waterways, and use precautions;	Knowledge of the influence of engineering structures, waterway profiles and protection works on navigation. Ability to navigate passing through various types of locks and the locking procedures, various types of bridges, profiles of canals and rivers and to make use of “safe harbours” and overnight ports.
5. work with up-to-date charts or maps, notices to skippers or mariners and other publications;	1. Knowledge of navigation aids. 2. Ability to use navigation aids as applicable e.g. satellite position system. 3. Ability to use nautical charts considering factors relating to accuracy and chart reading such as chart date, symbols, soundings, bottom description, depths and datums (WGS84) and to use international charts standards such as Inland ECDIS. 4. Ability to use nautical publications such as notices to skippers or mariners in order to collect necessary information required for safe navigation, finding height of tide at any time, information on ice, high or low water levels, berths and port directory.
6. use relevant traffic supervision tools and be able to apply them.	1. Knowledge of signals. 2. Ability to use day and night signs such as lights to guide craft. 3. Knowledge of Inland AIS, Inland ECDIS, electronic reporting and notices to skippers or mariners, RIS, surveilled and non-surveilled vessel traffic services (VTS) systems and its components. 4. Ability to use traffic information tools.

1.2 The boatmaster shall be able to apply knowledge of the applicable rules on the manning of craft, including knowledge on resting time and on the composition of the deck crew.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. ensure safe manning of craft in accordance with applicable rules, including knowledge on resting time and on the composition of the deck crew.	<ol style="list-style-type: none"> 1. Knowledge of minimum manning requirements and mandatory professional qualifications of crew members and shipboard personnel. 2. Knowledge of requirements of medical fitness and medical checks of crew members. 3. Knowledge of administrative procedure to record data in service record books. 4. Knowledge of applicable modes of exploitation and minimum resting time. 5. Knowledge of administrative procedure to record data in the logbook. 6. Knowledge of working time rules. 7. Knowledge of specific authorisation requirements. 8. Knowledge of specific manning requirements with respect to vessels covered by ADN, passenger vessels and for LNG craft where applicable. 9. Ability to instruct crew members when to take up and to end duty.

1.3 The boatmaster shall be able to sail and manoeuvre ensuring the safe operation of the craft in all conditions on inland waterways, including in situations that involve high traffic density or where other craft carry dangerous goods and require basic knowledge of the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN).

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. navigate and manoeuvre taking into account geographical, hydrological, meteorological and morphological characteristics of the main inland waterways;	<ol style="list-style-type: none"> 1. Knowledge of the hydrological and morphological characteristics of the main waterways, e.g. catchment area and watershed, types of rivers by water source, the slope and course of a river, flow velocity and current pattern, human intervention in the course of a river. 2. Knowledge of the meteorological effects on the main inland waterways, e.g. weather forecast and warning services, scale of Beaufort, district division for wind and storm warnings with factors such as air pressure, wind, high and low pressure areas, clouds, fog, types and passage of fronts, ice warning and high water warning. 3. Ability to apply geographical, hydrological, meteorological and morphological information.
2. give order to moor and unmoor craft and to haul towage operations;	<ol style="list-style-type: none"> 1. Knowledge of technical requirements and documents on mooring and hauling operations. 2. Ability to initiate procedures of mooring and unmooring manoeuvre and to ensure that equipment on different types of craft complies with requirements of craft certificate.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
3. provide safe access to craft;	3. Ability to communicate with deck personnel, e.g., to use communication systems and hand signals.
4. use modern electronic navigation aids;	1. Knowledge of technical requirements on facilities to access craft. 2. Ability to organise safe access to craft whether sailing, moored or at anchor and to use e.g. stairway, gangplank, ship's boat, fall protection and illumination.
5. respect technical requirements for inland navigation;	1. Knowledge of functions and operation of navigation aids. 2. Knowledge of operating principles, limitations and sources of error of navigation aids. 3. Ability to use nautical sensors and indicators providing navigation information, e.g. (D) GPS, position, heading, course, speed, distance, depth, Inland ECDIS, radar. 4. Ability to use River Information Services (RIS) and technologies, e.g. Inland AIS, Inland ECDIS, Electronic Reporting and notices to skipper, FIS (Fairway Information Services), TIS (Traffic Information Services), TMS (Traffic Management Services), CAS (Calamity Abatement Services), ITL (Information for Transport Logistics), ILE (Information for Law Enforcement), ST (Statistics), WCHD (Waterway Charges and Harbour Dues) distance, depth, also in connection with radar. 5. Ability to detect misrepresentation of information and apply methods of correction.
. consider effects of current, waves, wind and water-levels in relation with interactions of crossing, meeting and overtaking craft as well as ship-shore (canal effect);	1. Knowledge of structure and content of the applicable technical requirements and of the content of the craft certificate. 2. Ability to initiate checks and certification procedures. 1. Knowledge of the influence of waves, wind and current on sailing, manoeuvring or stationary craft, including the effect of wind e.g. cross wind when manoeuvring, also at nautical superstructures or when entering or leaving ports, locks and secondary waterways. 2. Knowledge of the influence of current on sailing, manoeuvring, and stationary craft on waterways used by inland navigation such as the effect of current, e.g. when manoeuvring upstream and downstream or with empty or loaded craft and when e.g. entering and leaving ports, locks or secondary waterways. 3. Knowledge of the influence of water movement during sailing, manoeuvring and when stationary such as the influence of water movement regarding draught subject to water depth and the reaction to shallow water effects e.g. by decreasing sailing speed. 4. Ability to respect interaction effects when sailing, manoeuvring and when stationary in a narrow fairway and to recognise the interaction effects relating to empty or loaded craft.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
7. use of propulsion and manoeuvring systems as well as appropriate communication and alarm systems;	<p>5. Knowledge of the effect of cargo handling and stowing conditions during sailing, manoeuvring and when stationary relating to stability.</p> <p>6. Ability to take into account trim, angle of heel, downflooding, lever principle, points of gravity.</p> <p>1. Knowledge of propulsion, steering and manoeuvring systems and their influence on manoeuvrability.</p> <p>2. Ability to use propulsion, steering and manoeuvring systems.</p> <p>3. Knowledge of anchoring devices.</p> <p>4. Ability to use anchor in various circumstances.</p> <p>5. Knowledge of communication and alarm systems.</p> <p>6. Ability to give instructions if necessary in the case of an alarm.</p>
8. sail and manoeuvre also in situations that involve high traffic density or where other craft carry dangerous goods, requiring basic knowledge of the ADN.	Basic knowledge of structure of ADN, ADN documents and instructions and visual signals required by ADN. Ability to find instructions in ADN and to identify visual signs for craft subject to ADN.

1.4 The boatmaster shall be able to respond to navigational emergencies on inland waterways.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. take precautions in an emergency when intentionally beaching a craft in order to prevent greater damage;	<p>1. Knowledge of shallow places and banks of sandy character that can be used to beach the craft.</p> <p>2. Ability to adequately use machines or anchoring devices if beaching becomes necessary.</p>
2. refloat a grounded craft with and without assistance;	<p>1. Knowledge of measures to take in the event of running aground including the sealing of leaks and the actions to be taken to redirect the craft into the fairway.</p> <p>2. Ability to seal leaks, to redirect the craft with the assistance of other craft, e.g. tug or push vessels.</p>
3. take appropriate actions if collision is imminent;	<p>1. Knowledge of rules applicable if collision or accident is imminent.</p> <p>2. Ability to navigate the craft when in an unavoidable collision situation in such a way that damage will be minimal to persons, e.g. for instance passengers and crew members, the colliding craft and other craft, the cargo and the environment.</p>
4. take appropriate actions after a collision and assessment of damage.	<p>1. Knowledge of rules applicable after a collision or accident.</p> <p>2. Ability to take the appropriate measures in the event of damage, collision and running aground, including assessment of</p>

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

the damage, communication with the competent authority and obtaining permission to sail to a position of recovery.

2. Operation of the craft

2.1 The boatmaster shall be able to apply knowledge of inland waterway shipbuilding and construction methods to the operation of various types of craft and have basic knowledge of the technical requirements for inland waterway vessels, as referred to in Directive (EU) 2016/1629 of the European Parliament and of the Council.¹

The boatmaster shall be able to:

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

1. respect the principles of inland waterway shipbuilding and construction;

1. Knowledge of importance and impact of craft dimensions and dimensions of inland waterway according to applicable rules.

2. Ability to operate craft according to their dimensions and applicable construction legislation.

3. Ability to supervise the compliance of craft with the applicable legislation taking into account construction work.

2. distinguish construction methods of craft and their behaviour in the water, especially in terms of stability and strength;

1. Knowledge of craft features as laid down in construction drawings of various types of craft and of the effect of the construction on the craft behaviour and its stability and strength.

2. Knowledge of the craft's behaviour in various conditions and environments.

3. Ability to supervise the craft's stability and to give instructions accordingly.

3. understand structural parts of craft and damage control and analysis;

1. Knowledge of key elements of craft and different types of craft including basic knowledge on the technical requirements for inland navigation vessels, as referred to in Directive (EU) 2016/1629.

2. Ability to monitor the craft's core elements for the different types of transport and give instructions accordingly.

3. Knowledge of the longitudinal and transversal structure and local reinforcements in order to prevent and analyse damage.

4. Ability to understand and control the functions of the equipment and usage of different holds and compartments in order to prevent and analyse damage.

4. take action to protect the craft's watertight integrity.

1. Knowledge of the craft's water tightness.

2. Ability to supervise the craft's watertight integrity and give instructions accordingly.

¹ Directive (EU) 2016/1629 of the European Parliament and of the Council of 14 September 2016 laying down technical requirements for inland waterway vessels, amending Directive 2009/100/EC and repealing Directive 2006/87/EC (OJ L 252, 16.9.2016, p. 118).

2.2 The boatmaster shall be able to control and monitor the mandatory equipment as mentioned in the applicable craft certificate.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. understand functionalities of craft equipment;	1. Knowledge of mandatory equipment of the craft. 2. Ability to use and control all equipment in relation to their functionalities according to applicable legislation, and give instructions and supervise accordingly.
2. respect specific requirements for transport of cargo and passengers.	1. Knowledge of the specific requirements relating to craft construction and equipment needed for the transport of different cargoes and passengers with different types of craft according to applicable legislation. 2. Ability to give instructions and supervise accordingly. 3. Ability to give instructions and supervise the correct application of the requirements of the certificate.

3. Cargo handling, stowage and passenger transport

3.1 The boatmaster shall be able to plan and ensure safe loading, stowage, securing, unloading and care of cargoes during the voyage.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. understand relevant national, European and international regulations, codes and standards concerning the operation of transporting cargoes;	1. Knowledge of the national, European and international regulations involving loading, unloading and transport operations. 2. Apply relevant rules and standards for logistics and multimodal transport.
2. compose stowage plans including knowledge of loading cargoes and ballast systems in order to keep hull stress within acceptable limits;	1. Knowledge of the operational and design limitations of dry cargo (e.g. container) craft and tanker vessels (N, C, G). 2. Ability to interpret limits for bending moments and shear forces. 3. Knowledge of use of stowage and stability software. 4. Ability to compose stowage plans, including the use of stowage and stability software.
3. control loading and unloading procedures with regard to safe transport;	1. Knowledge of stowage plans and available ship borne data and its implementation. 2. Ability to stow and secure cargo including necessary cargo-handling gear and securing and lashing equipment. 3. Knowledge of the various methods of determination of the cargo weight on cargo vessels and tank vessels and other craft. 4. Knowledge of determination of the amount of loaded or discharged cargo and of calculation of the amount of dry and liquid cargo.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
4. differentiate various goods and their characteristics in order to monitor and ensure safe and secure loading of goods as laid down in the stowage plan.	<p>5. Knowledge of the possible detrimental effects of inadequate cargo handling.</p> <p>6. Ability to use the technical means for handling cargoes in or from craft and ports, and labour safety measures during their use.</p> <p>1. Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant safe working regulations.</p> <p>2. Knowledge of effective communication and working relationships with all partners involved in loading and unloading procedures.</p>

3.2 The boatmaster shall be able to plan and ensure the stability of the craft.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. respect the effect on trim and stability of cargoes and cargo operations;	<p>1. Knowledge of watertight integrity and stability for all types of cargo and craft.</p> <p>2. Ability to use instruments to correct trim and stability.</p>
2. check the effective tonnage of the craft, use stability and trim diagrams and stress calculating equipment, including ADB (Automatic Data-Base) to check a stowage plan.	<p>1. Knowledge of dedicated software to calculate stability, trim and stress.</p> <p>2. Ability to determine stability, trim and to use stress tables, diagrams and stress-calculating equipment.</p>

3.3 The boatmaster shall be able to plan and ensure safe transport of and care for passengers during the voyage including providing direct assistance to disabled persons and persons with reduced mobility in accordance with the training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. understand relevant national, European and international regulations, codes and standards concerning the transportation of passengers;	<p>1. Knowledge of the applicable regulations and conventions regarding passenger transport.</p> <p>2. Ability to ensure safe embarking and disembarking of passengers and their care during the voyage, with special attention to persons needing assistance, and direct assistance to disabled persons and persons with reduced mobility in accordance with the training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010.</p> <p>3. Ability to control proceedings in the case of leakage, fire, man over board, collision and evacuation, including crisis and crowd management.</p>

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
2. arrange and monitor regular exercises on safety as laid down in the (safety) muster list in order to guarantee safe behaviour in potential situations of danger;	<ol style="list-style-type: none"> 1. Knowledge of responsibilities under international and national regulations affecting the safety of the vessel, passengers and crew. 2. Ability to implement shipboard personnel management and training with respect to safety. 3. Apply medical first aid on board vessel.
3. respect impacts on stability of the passenger vessel in relation to weight distribution of passengers, behaviour and communication with passengers;	<ol style="list-style-type: none"> 1. Knowledge of rules and regulations with regards to stability. 2. Ability to apply relevant measures regarding the watertight integrity, including influence on trim and stability of passenger vessels. 3. Knowledge of vessel's design relating to trim and stability, and actions to be taken in the event of partial loss of intact buoyancy/damage stability of passenger vessels. 4. Ability to use standardised communication phrases.
4. define and monitor on-board risk analysis of limited access for passengers as well as compile an effective on-board protection system in order to prevent unauthorised access;	<ol style="list-style-type: none"> 1. Knowledge of and compliance with the limitation of the number of passengers according to the passenger vessel certificate. 2. Knowledge of safety and security systems preventing unauthorised access. 3. Ability to organise watchkeeping (i.e. night watch) systems with respect to safety and security.
5. analyse reports given by passengers (i.e. unforeseen occurrences, defamation, vandalism) in order to react appropriately.	<ol style="list-style-type: none"> 1. Knowledge of passenger rights and complaints from passengers, and of risks connected to passenger transport for the environment. 2. Ability to prevent environmental pollution by passengers and crew. 3. Ability to handle complaints and conflict management. 4. Ability to communicate with shipboard personnel and all interacting parties.

4. Marine engineering and electrical, electronic and control engineering

4.1 The boatmaster shall be able to plan the workflow of marine engineering and electrical, electronic and control engineering.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. use the functionality of the main engines and auxiliary equipment and their control systems;	<ol style="list-style-type: none"> 1. Knowledge of operation of main engine and auxiliary equipment installations. 2. Knowledge of characteristics of fuels and lubricants. 3. Knowledge of control systems. 4. Ability to use various systems of different propulsion systems and auxiliary machinery and equipment.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
2. monitor and supervise crew members when operating and maintaining the main engines, auxiliary machinery and equipment.	1. Ability to manage the crew with respect to operating and maintaining technical equipment. 2. Ability to manage start up and shut down main propulsion, auxiliary machinery and equipment.

4.2 The boatmaster shall be able to monitor the main engines and auxiliary machinery and equipment.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. give instructions to prepare main engines and auxiliary machinery and equipment;	1. Ability to instruct the crew in the preparation and operation of main and auxiliary machinery and equipment. 2. Ability to set up and monitor checklists and to give instructions to properly use such checklists. 3. Ability to instruct crew on principles to be observed during engine surveillance.
2. detect malfunctions, common faults and take actions to prevent damage;	1. Knowledge of methods to detect engine and machinery malfunction. 2. Ability to detect malfunctions, frequent sources of error or inappropriate treatment, and to respond adequately. 3. Ability to instruct actions to be taken in order to prevent damage or to take measures for damage control
3. understand the physical and chemical characteristics of oil and other lubricants;	1. Knowledge of the characteristics of the materials used. 2. Ability to use oil and other lubricants according to their specifications. 3. Ability to understand machinery handbooks. 4. Knowledge of operational characteristics of equipment and systems.
4. evaluate engine performance.	1. Ability to use and interpret manuals to evaluate engine performance and operate engines appropriately.

4.3 The boatmaster shall be able to plan and give instructions in relation to the pump and the pump control system of the craft.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. monitor routine pump works, ballast and loading pump systems.	1. Knowledge of pump systems and pumping operations. 2. Ability to ensure monitoring of safe operation of bilge, ballast and cargo pump systems including adequate instructions to the crew, taking into account free surface effects on stability.

4.4 The boatmaster shall be able to organise the safe use and application, maintenance and repair of the electro-technical devices of the craft.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. prevent potential damage to electric and electronic devices on board;	1. Knowledge of electro-technology, electronics and electrical equipment and safety devices e.g. automation, instrumentation and control systems to prevent damage. 2. Ability to apply safe working practices.
2. test control systems and instruments to recognise faults and at the same time take actions to repair and maintain electric or electronic control equipment;	1. Knowledge of the craft's electro-technical testing devices. 2. Ability to operate, test and maintain control systems and take appropriate measures.
3. give instructions before and follow-up activities to connect or disconnect technical shore-based facilities.	1. Knowledge of safety requirements for working with electrical systems. 2. Knowledge of the construction and operational characteristics of shipboard electrical systems and equipment in relation to shore-based facilities. 3. Ability to give instructions to guarantee safe shore connection at any time and to recognise dangerous situations with regard to shore-based facilities.

4.5 The boatmaster shall be able to control the safe maintenance and repair of technical devices.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. ensure appropriate use of tools to maintain and repair technical devices;	1. Knowledge of the maintenance and repair procedures for technical devices. 2. Ability to organise and instruct on safe maintenance and repair using appropriate procedures (control), equipment and software.
2. assess characteristics and limitations of materials as well as necessary procedures used to maintain and repair technical devices;	1. Knowledge of characteristics of maintenance and repair material for technical devices. 2. Ability to apply maintenance and repair procedures on devices according to manuals.
3. evaluate technical and internal documentation.	1. Knowledge of construction specifications and technical documentation. 2. Ability to set up checklists for maintenance and repair of technical devices.

5. Maintenance and repair

5.1 The boatmaster shall be able to organise safe maintenance and repair of the craft and its equipment.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. ensure safe behaviour of crew members with regard to the use of materials and additives;	1. Knowledge of safe and effective maintenance and repair procedures. 2. Ability to monitor and supervise crew to apply precautions and contribute to the prevention of pollution of the marine environment. 3. Ability to apply and observe the applicable labour regulations and safe working rules and ensure they are respected.
2. define, monitor and ensure work orders so that crew members are able to perform maintenance and repair work independently;	1. Knowledge of cost effective and efficient maintenance work and of applicable legal requirements. 2. Ability to use (digital) maintenance planning programmes effectively. 3. Ability to control the maintenance and repair of the craft's inner and outer parts considering applicable legal requirements such as safety data sheets. 4. Ability to manage the hygiene of the craft. 5. Ability to organise the waste management taking into account environmental regulations such as the Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI Convention). 6. Ability to elaborate the periodic programme of maintenance for the craft. 7. Ability to monitor and control technical documents of the craft and keep maintenance logs.
3. purchase and control material and tools with regard to health and environmental protection;	1. Ability to administer the craft's stocks. 2. Ability to organise a safe working system on board including the use of hazardous materials for cleaning and conservation work. 3. Ability to check the quality of the repairs.
4. ensure wires and ropes are being used according to the manufacturer's specifications and intended purpose.	1. Ability to instruct and supervise the crew in accordance with the working procedures and safety limitations when using ropes and wires according to the craft's certificate and datasheets.

6. Communication

6.1 The boatmaster shall be able to perform human resources management, be socially responsible, and take care of organisation of workflow and training on board the craft.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. organise and stimulate teambuilding and coach the crewmembers regarding shipboard duties and, if necessary, take disciplinary measures;	1. Knowledge of human resource management. 2. Ability to give instructions to the crew in an appropriate and professional way. 3. Ability to explain given instructions to the crew. 4. Ability to give feedback to the crew about professional and social behaviour on board. 5. Ability to apply task and workload management, including: planning and co-ordination, personnel assignment, time and resource constraints, prioritisation. 6. Ability to recognize and prevent fatigue.
2. instruct crew on information- and communication systems;	1. Knowledge of information- and communication systems available on board. 2. Ability to instruct the crew on the use of the craft's communication, media and IT systems.
3. collect, save and manage data with regard to data protection laws.	1. Knowledge of the use of all the craft's computer systems. 2. Ability to collect and store data in accordance with applicable legislation.

6.2 The boatmaster shall be able to ensure good communication at all times, which includes the use of standardised communication phrases in situations with communication problems.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. describe circumstances by using relevant technical and nautical terminology;	1. Knowledge of the correct use of relevant technical and nautical terms. 2. Ability to master communication.
2. retrieve, evaluate and use information with relevance to safety on board as well as nautical-technical issues.	1. Knowledge of procedures to follow in all distress, emergency and safety communication. 2. Ability to use the standard communication phrases.

6.3 The boatmaster shall be able to foster a well-balanced and sociable working environment on board.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. ensure a good social working environment;	1. Ability to take the lead in organising team meetings to keep the social atmosphere on board well balanced. 2. Knowledge and awareness of gender-related and cultural differences. 3. Knowledge of relevant rules applying to the training and education of students, apprentices and trainees. 4. Ability to guide students, apprentices and trainees on various levels. 5. Ability to apply basic team working principles and practice including conflict management.
2. apply national, European and international social legislation;	1. Knowledge of the various national, European and international social laws. 2. Ability to instruct crew members in using relevant parts of applicable social legislation.
3. follow strict alcohol and drug prohibition and react appropriately in cases of infringement, take responsibility and explain consequences of misbehaviour;	1. Knowledge of applicable rules on alcohol and drugs. 2. Ability to communicate and ensure compliance with applicable legislation and awareness of company rules concerning alcohol and drugs. 3. Ability to react appropriately upon violation of legislation or company rules.
4. organise provisioning and preparation of meals on board.	1. Knowledge of principles of healthy nutrition. 2. Ability to instruct crew members in planning and preparing meals. 3. Ability to instruct and supervise crew members regarding hygienic standards. 4. Ability to instruct crew members in planning purchasing possibilities.

7. Health and safety, passenger rights and environmental protection

7.1 The boatmaster shall be able to monitor the applicable legal requirements and take measures to ensure the safety of life.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. apply national and international legislation and take appropriate measures for health protection and the prevention of accidents;	Knowledge of legislation for health protection and prevention of accidents. 2. Ability to apply safety procedures based on applicable legislation in the field of safety and working conditions.

<p>2. control and monitor validity of the craft’s certificate and other documents relevant to the craft and its operation;</p>	<p>1. Knowledge of legislation on periodic checks of equipment and construction parts.</p> <p>2. Ability to check the validity of certificates and other documents relevant to the craft and its operation.</p>
<p>3. comply with safety regulations during all working procedures by using relevant safety measures in order to avoid accidents;</p>	<p>1. Knowledge of safe working practices and safe working procedures.</p> <p>2. Ability to organise safe working procedures, to motivate and monitor crew members to apply safe working rules.</p>
<p>4. control and monitor all safety measures necessary for cleaning enclosed spaces before persons open, enter and clean those facilities.</p>	<p>1. Ability to organise safety control and monitor safety procedures if crew or other persons enter enclosed spaces (e.g. ballast tanks, cofferdams, tanks, double hull spaces) including keeping watch.</p> <p>2. Ability to conduct a risk assessment before entering enclosed spaces.</p> <p>3. Knowledge of precautions to take before entering an enclosed space and while work is being carried out in an enclosed space, for example: hazards of enclosed spaces, atmosphere tests prior to entry, control of entry into enclosed spaces, safeguards for enclosed space entry, protective equipment (e.g. harnesses and respiratory equipment), work in enclosed spaces.</p> <p>4. Ability to take appropriate actions in the event of an emergency.</p>

7.2 The boatmaster shall be able to maintain safety and security for persons on board including direct assistance to disabled persons and persons with reduced mobility in accordance with the training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
<p>1. use life-saving appliances and apply life-saving procedures for victims and own personal safety;</p>	<p>1. Knowledge of available life-saving equipment.</p> <p>2. Ability to use life-saving appliances and to apply life-saving procedures for victims and own personal safety.</p>
<p>2. organise crisis management training exercises for behaviour in emergency situations, e.g. fire, leakage warning, explosion, collision, “person over board” and evacuation;</p>	<p>1. Knowledge of emergency procedures.</p> <p>2. Ability to instruct crew members on emergency procedures.</p> <p>3. Ability to organise periodic training of the crew on board the vessel in preparation for an emergency situation including organisation of firefighting and abandon craft drills.</p>

3. give instructions related to fire prevention, personal protection equipment, methods, firefighting material, respirators and possible application of these devices in emergencies;	<ol style="list-style-type: none"> 1. Knowledge of the applicable fire prevention laws and regulation on the use of tobacco and possible ignition sources. 2. Ability to comply with relevant regulations on fire detection systems; fixed and mobile fire-extinguishing equipment and related appliances e.g. pumping, rescue, salvage, personal protective and communication equipment. 3. Ability to control the monitoring and maintenance of fire detection and extinguishing systems and equipment. 4. Ability to instruct crew and shipboard personnel to apply safe working rules and to maintain personal protection and personal safety equipment.
4. perform first aid;	<ol style="list-style-type: none"> 1. Ability to act in compliance of first aid standards and practises.
5. establish an effective on-board system to control life-saving appliances and correct application of personal protection equipment;	<ol style="list-style-type: none"> 1. Knowledge of legislation applicable to life-saving appliance and safe working condition regulations. 2. Ability to maintain and perform periodic checks of operational condition of life-saving, firefighting and other safety equipment and systems. 3. Ability to instruct on, to motivate and supervise the correct use of (personal) safety equipment by crew members and shipboard personnel.
6. organise assistance for disabled persons and persons with reduced mobility.	<ol style="list-style-type: none"> 1. Knowledge of training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010. 2. Ability to perform and organize direct assistance to disabled persons and persons with reduced mobility.

7.3 The boatmaster shall be able to set up emergency and damage control plans, and handle emergency situations.

The boatmaster shall be able to:

*COLUMN 1
COMPETENCE*

*COLUMN 2
KNOWLEDGE AND SKILLS*

1. initiate preparations for rescue plans of different types of emergencies;	<ol style="list-style-type: none"> 1. Knowledge of different types of emergencies which may occur such as collision, fire, flooding, sinking. 2. Ability to organise shipboard contingency plans for response to emergencies and to assign specific duties to crew members including monitoring and control.
2. train on methods to prevent fire, recognition of origin of fire and firefighting according to the different skills of crew members;	<ol style="list-style-type: none"> 1. Knowledge of firefighting procedures with particular emphasis on tactics and command. 2. Knowledge of the use of water for fire-extinguishing with regard to the effect on vessel stability, and ability to take appropriate measures. 3. Ability to communicate and coordinate during firefighting operations including communication with external organisations and to actively take part in rescue and firefighting operations.

3. train on the use of life saving appliances;	1. Knowledge of particular characteristics and facilities of rescue devices.
	2. Ability to launch and recover a ship's boat and instruct crew members and shipboard personnel on the use of a ship's boat.
4. give instructions on rescue plans, escape routes and internal communication and alarm systems.	1. Knowledge of legislation applying to rescue plans and safety rota.
	2. Ability to give instructions on rescue plans, escape routes and internal communication and alarm systems.

7.4 The boatmaster shall be able to ensure compliance with requirements for environmental protection.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. take precautions to prevent environmental pollution and use relevant equipment;	1. Knowledge of procedures to prevent pollution of the environment. 2. Ability to take precautions to prevent pollution of the environment. 3. Ability to apply safe bunkering procedures. 4. Ability to take measures and give instructions in the event of damage, collision and running aground including the sealing of leaks.
2. apply environmental protection laws;	1. Knowledge of environmental regulations. 2. Ability to motivate crew members and board personnel to take relevant measures for environmentally friendly behaviour or to behave in an environmentally friendly way.
3. use equipment and materials in an economical and environmentally friendly way;	1. Knowledge of procedures to make sustainable use of resources. 2. Ability to instruct crew in using equipment and materials in an economical and environmentally friendly way.
4. instruct and monitor sustainable waste disposal.	1. Knowledge of legislation on waste disposal. 2. Ability to ensure sustainable waste disposal and to instruct crew members and board personnel accordingly.