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Mutual recognition of boatmasters' certificates and harmonization of professional requirements in inland navigation:

Second meeting of IEG

Standards of Training and Certification for personnel in Inland Navigation (STCIN) developed by PLATINA (project financed by the European Commission) *

Transmitted by the European Union

I. Mandate

1. This document is submitted in line with cluster 5: Inland Waterway Transport, paragraph 5.2 of the programme of work 2014–2015 (ECE/TRANS/2014/23) adopted by the Inland Transport Committee on 27 February 2014.

2. The Standards of Training and Certification for personnel in Inland Navigation (STCIN) presented in this document have been developed by PLATINA (a project financed by the European Commission). They are divided in seven chapters for two levels of responsibility (operational (boatman) and management (boatmaster) level):

1. Navigation
2. Cargo handling, stowage and passenger transport
3. Controlling the operation of the ship and care for persons on board
4. Marine engineering and electrical, electronic and control engineering
5. Maintenance and repair
6. Communication

* The present document is being issued without formal editing.

7. Safety, health and environmental protection

3. For formatting purposes, the secretariat presents in this document only the two first columns of the tables. The full tables and more details on the methodology can be found in the original PLATINA document reproduced in informal document IEG-2014-2.¹

¹ See www.unece.org/trans/main/sc3/wp3/wp3doc_2014.html (tab "IEG 1st meeting").

OL 1. Navigation

The boatman is able to assist in an adequate way with mooring and anchoring operations enabling the start or end of the ships voyage. The boatman is able to assist in an adequate way with sailing and manoeuvring of the ship in a nautical safe and economical way.

The boatman is able to assist in an adequate way to prepare the ship for sailing in order to ensure a safe voyage in all circumstances.

1.1 Assists the ships management in situations of manoeuvring and handling a ship on inland waterways, using all types of waterways and ports and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Assist with mooring, unmooring and hauling (towage) operation	<ol style="list-style-type: none"> 1. Knowledge and ability to use general equipment on board different types of vessels, e.g. bollards and winches of mooring and unmooring manoeuvres. 2. Knowledge and ability to use materials available on board such as ropes and wires considering relevant safety measures such as use of Personal Safety Equipment (PSA). 3. Communicates with the wheelhouse from the bow or aft using VHF and intercom communication systems and hand signals. 4. Knowledge of the effects of water movement around ships and local effects on sailing circumstances including the effects of trim, shallow water relating to ship's draught. 5. Knowledge of the effects of water movement and effects around the ship during manoeuvring including the interaction effects when two ships pass and overtake each other in narrow fairways. The interaction effects on a ship moored alongside when another ship is proceeding in the fairway and passing at a short distance.
2. Assist with couple operations of push barge combinations	<ol style="list-style-type: none"> 1. Knowledge and ability to connect and disconnect push/barge combinations using approved equipment and materials. 2. Knowledge and ability to apply safe working rules and communication with crewmembers involved.
3. Assists with anchoring operations	<ol style="list-style-type: none"> 1. Knowledge of anchoring equipment and procedures in various circumstances. 2. Knowledge and ability to assist with anchor manoeuvres: prepare anchor equipment for anchoring operations, presenting anchor, giving sufficient amount of cable to veer initially. Determination when the anchor holds the ship at its position (anchor bearing). Securing of anchors on the completion of anchoring. The use of dragging anchors in various manoeuvres. Handling of the anchor signs.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
4. Steer the ship complying to helm orders using steering gear properly	<ol style="list-style-type: none"> 1. Knowledge and ability to steer the ship under supervision and complying with helm orders using propulsion and steering systems. 2. Knowledge of functions and types of the various propulsion and steering systems.
5. Apply knowledge of influence of wind and current	<ol style="list-style-type: none"> 1. Knowledge of the influence of wind and current on sailing and manoeuvring. 2. Knowledge of the influence of wind on sailing and manoeuvres in waterways with or without current and various wind directions.
6. Apply knowledge of navigational aids, tools and materials.	<ol style="list-style-type: none"> 1. Basic knowledge of the navigation tools such as, rudder indicator. 2. Ability to understand and use the information of navigation equipment such as VHF, compass, rate of turn indicator, binocular, sailing speed indicator. 3. Knowledge and ability to use navigation materials such as charts.
7. Undertake actions to be taken in terms of safety of navigation	<ol style="list-style-type: none"> 1. Knowledge and ability to recognise unsafe situations and follow-up actions according to the safety regulations. Immediately warning of the ships management. The use of personal protective and rescue equipment. 2. Knowledge of verification commissioned by the supervisor the presence, usefulness, water tightness and securing of the ship and its equipment. 3. Knowledge of and ability to execute the work according to the checklist on deck and living quarters such as waterproofing and securing of the hatches and holds. 4. Knowledge of and ability to execute the work according to the checklist in the engine room; store and secure loose items. Filling the day service tanks, checking vents.
8. Describe the network of the main European inland waterways	<ol style="list-style-type: none"> 1. Knowledge of the most important national and international inland waterways. 2. Assist with planning of the journey, e.g. determination of height of bridges in the canal area. 3. Knowledge of the main port and terminals located in the European IWT network.
9. Describe the characteristics of various types of inland waterways	<ol style="list-style-type: none"> 1. Knowledge of the influence of engineering structures, waterway profiles and protection works on navigation. 2. Knowledge of the classification characteristics of rivers, canals and maritime waterways. Bottom width, bank type, bank protection, water level, water movement vertical and horizontal and depth. 3. Knowledge of additional equipment when navigating on maritime waterways.
10. Apply the knowledge of days and night signs, sound signals and general rules of the inland waterway police regulations	<ol style="list-style-type: none"> 1. Knowledge of the rules of the road applying to the relevant inland waterways such as CEVNI or police regulations. Handling and maintenance of day and night signs and sound signals. 2. Knowledge of the buoyage and marking system SIGNI and IALA.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
11. Describe the various types of locks in relation to locks operation	<ol style="list-style-type: none"> 1. Apply knowledge of the various engineering constructions and facilities of locks and bridges important for navigation. 2. Apply knowledge of the shape, layout and facilities of locks and bridges. Canal reach, upper reach, Lower reach, upper gate, lower gate, lock chamber, Lockage (locking process), single gate or ordinary locks, double-gated or guard locks, types of Lock gates, bollards and stairs, etc. 3. Apply knowledge of the procedures during entering, locking and leaving the lock.
12. Use systems of traffic control	<ol style="list-style-type: none"> 1. Knowledge of various traffic control systems in use on the waterway of sailing. 2. Knowledge and understanding of day and night signs on locks, weirs and bridges. Follow instructions of the competent authority such as, bridge- and lockkeepers and traffic control operators. 3. Knowledge and understanding of VHF procedures to report or request of information with traffic centers and in emergency cases ability to use the VHF. Basic knowledge of AIS and Inland ECDIS.

OL 2. Cargo handling, stowage and passenger transport.

2.1 Assists the ships management in preparation, stowage and monitoring of cargo during loading and unloading operations and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Read stowage plans	<ol style="list-style-type: none"> 1. Basic knowledge of types of cargo. 2. Knowledge and understanding of stowing plans. 3. Knowledge of numbering and divisions of the holds of dry cargo ships and of the tanks of tanker vessels (N-C-G) and basic knowledge of stowing the various types of cargo. 4. Identification of ADN labelling of hazardous and dangerous goods.
2. Monitor the stowage and securing of cargo	<ol style="list-style-type: none"> 1. Basic knowledge of the methods to stow the ship with various cargoes in order to ensure a safe and efficient transport and ability to apply this knowledge. 2. Knowledge and ability to prepare the ship for loading and unloading operations, i.e. by opening or closing the holds. Performs watchkeeping at deck during loading and unloading operations. 3. Ability to use portable VHF- instrument on intraship channels to establish and maintain effective communications during loading and unloading. 4. Basic knowledge of the effect of cargo on the stability of the ship.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	5. Ability to monitor and report damage of cargo.
3. Apply knowledge of various types of cargo and their qualities.	1. Knowledge and ability to distinguish various types of cargo for example break bulk cargo liquid bulk cargo and heavy goods etc. 2. Basic knowledge of the logistic chain and multimodal transport.
4. Apply knowledge of the use of ballast	1. Knowledge of the function and use of the ballast system. 2. Apply knowledge of ballast system and use the system for example by filling or emptying the ballast tanks.
5. Measure gauge marks and to check the amount of cargo	1. Basic knowledge of manual and technical methods of determination of the cargo weight on various types of vessels. 2. Knowledge of methods of determination of the amount of loaded or discharged cargo. Calculation of the amount of cargo using the gauges and the certificate of tonnage. 3. Knowledge of the calculation of the amount of liquid cargo using the soundings and/or tank tables
6. Work according to regulations and safe working rules	1. Knowledge and ability to comply with the safe working rules and procedures during preparation, loading and discharging phase of the ship with various types of cargoes. 2. Knowledge and ability to use personal safety equipment. 3. Ability to establish and maintain effective verbal and non-verbal communications with all partners involved with loading and unloading procedures. Knowledge about technical means for handling cargoes in/from ships and ports and labour safety measures during their use

2.2 Assists the ships management in services to passengers and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of regulations and conventions regarding passenger transport	Basic knowledge of the applicable regulations and conventions regarding passenger transport.
2. Assist in safe movement of passengers when embarking and disembarking	1. Knowledge and ability of preparations for embarking and disembarking passengers. 2. Knowledge of the position and placement of the gangway including safety measures.
3. Assist in controlling passengers during emergency	1. Basic Knowledge and ability to use life-saving equipment in calamity situations. 2. Basic knowledge and ability to assist in case of leakage, fire, man over board, collision and evacuation

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
situations	including crisis and crowd management.
	3. Knowledge and proficiency applying medical first aid on board ship.
4. Communicate effectively with passengers	1. Basic knowledge and use of standardised phrases (Riverspeak) for evacuation of passengers in case of emergency. 2. Knowledge and use of service- oriented behaviour and language.

OL 3. Controlling the operation of the ship

3.1 Assists the ships management in controlling the operation of the ship and care for persons on board and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Distinguish various types of ships	Knowledge and ability to define and recognize the most common types of vessels used in European IWT and their corresponding construction, dimensions and tonnages.
2. Apply knowledge of the of inland waterway ships construction and their behavior in water, especially in terms of stability and strength	1. Knowledge and ability to understand the effects of the vessel's movement in various circumstances caused by longitudinal and transversal stresses and bracing. 2. Knowledge and ability to describe the vessel's behavior in different loading conditions, related to the vessel's stability and strength.
3. Apply knowledge of the ships structural parts and identifies the parts by name and function	1. Knowledge and ability to recognize the vessel's core elements for the transport of different types of cargo and passengers. 2. Knowledge and understanding of the longitudinal and transversal structure and local reinforcements. 3. Knowledge and understanding of the functions, names and proper use of equipment and of different compartments.
4. Apply knowledge of the ships watertight integrity	Knowledge and ability to explain and verify the watertight integrity of IWT vessels.
5. Apply knowledge of the ships certificate of approval	Knowledge and ability to name the vessels obligatory certificates and understand their importance in relation to (inter)national requirements and legislation.

3.2 Uses the ships equipment and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of various types of anchors and handling anchor winches	<ol style="list-style-type: none"> 1. Knowledge and ability to name and recognize different kinds of anchors used in IWT and explain their specific use. 2. Knowledge and ability to name and recognize different kinds of anchor winches used in IWT and explain their specific use. 3. Knowledge and ability to safely handle all kinds of anchor winches in various situations and conditions.
2. Apply knowledge of deck equipment and lifting devices. (Coupling winches, hatches lifting devices, car crane, etc.)	Knowledge and ability to name, recognize and safely handle different kinds of equipment used on deck of IWT vessels such as (coupling) winches, hatches, lifting devices, car cranes, pipe systems, fire hoses, etc.
3. Apply knowledge of equipment especially on passenger ships	Knowledge and ability to differentiate specific construction requirements, equipment and devices for passenger vessels.

OL 4. Marine engineering and electrical, electronic and control engineering

4.1 Assists the ships management in marine-, electrical-, electronic-, control engineering to ensure general technical safety and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of construction and functioning , of monitoring operations and daily maintenance work	<ol style="list-style-type: none"> 1. Basic knowledge and understanding of principles of combustion engines. 2. Basic Knowledge and understanding of different engines and their construction , performance and terminology. 3. Basic Knowledge and understanding of the function and operation of air delivery, fuel delivery, lubrication cooling and emission system. 4. Basic knowledge of propulsion and auxiliary engines
2. To prepare main engines and auxiliary equipment for operation	<ol style="list-style-type: none"> 1. Knowledge and ability to use different starting systems according to instructions 2. Knowledge and understanding of principles of reversing systems. 3. Knowledge and ability to prepare the machinery in the engine room according to checklist for departure

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	<ol style="list-style-type: none"> 4. Knowledge and ability to use auxiliary equipment according to instructions, e.g. steering equipment. 5. Knowledge and ability to start the main engine(s) following starting procedures. 6. Basic knowledge and understanding of hydraulic and pneumatic systems
3. Apply knowledge of machinery malfunctions and correction of faults to prevent any damage	<ol style="list-style-type: none"> 1. Knowledge and ability to control equipment in the engine room; recognise malfunctions and take respective notifications 2. Knowledge and ability to take appropriate measures in case of malfunctions and report to the ship management
4. Operate machinery including pumps, piping systems, bilge and ballast systems	<ol style="list-style-type: none"> 1. Knowledge and ability to operate and control the machinery in the engine room following the procedures 2. Knowledge and understanding of the 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 3. Knowledge and ability to prepare and operate shut-off operations of the engine room after arrival. 4. Knowledge and ability to operate pumping bilge, ballast and cargo pumping systems. 5. Knowledge and understanding of the necessity to collect, store and deliver waste products in a correct and safe manner.
5. Apply basic knowledge of electronic devices	<ol style="list-style-type: none"> 1. Knowledge and understanding of electronic and electrical systems and components; 2. Knowledge and understanding of AC and DC current. 3. Knowledge and ability to monitor and evaluate control instruments. 4. knowledge and understanding of magnetism and the difference between natural and artificial magnets 5. knowledge and understanding of electro hydraulic systems
6. Prepare, starting, connecting and changing generators and control their systems	<ol style="list-style-type: none"> 1. Knowledge and understanding of the power installation; 2. Knowledge and ability to use switchboard and switch cabinet.
7. Apply knowledge of malfunctions, common faults and actions to prevent damage	Ability to locate common faults and take action to prevent damage to mechanical ,electrical, electronic, hydraulic and pneumatic systems
8. Use suitable tools	Knowledge of characteristics and limitations of processes and materials used for maintenance and repair of engines and equipment and ability to apply safe working practices

4.2 Performs maintenance work on marine-, electrical-, electronic-, control engineering equipment to ensure general technical safety and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Perform the daily maintenance work at the main engines, auxiliary machinery, and control systems	Knowledge and ability to maintain and to take care of the (engine room)/main engine main machinery and auxiliary equipment
2. Perform the daily maintenance work at machinery including pumps, piping systems, bilge- and ballast systems	Knowledge and ability to maintain and to take care of systems named under 4.1.4
3. Apply knowledge of qualities and limits of different materials used on board to maintain and repair equipment and technical devices	Knowledge and ability to determine and use materials to maintain and repair equipment
4. Follow procedures of maintenance and repair	Knowledge and ability to conduct maintenance and repair procedures according to applying manuals and instructions for all systems
5. Understand technical information material and documenting technical procedures	Knowledge and ability to read and understand technical documentation and manuals applying to maintenance work for all systems.

OL 5. Maintenance and Repair

5.1 Performs maintenance and repair of the vessel and the vessels' devices and equipment and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Work with different materials and tools used for maintenance and repair operations	1. Knowledge and ability to use the right tools and maintain equipment in the right way. 2. Ability to use relevant methods for "Vessels maintenance" including knowledge and use of differing materials. 3. Ability to correctly maintain and store tools and maintenance equipment. 4. Ability to conduct maintenance work according to safe working and environmental rules.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
2. Apply knowledge of the use of cleansing and preserving agents regarding the protection of health and environment	<ol style="list-style-type: none"> 1. Knowledge and ability to clean all living spaces and keeping the household in a proper way complying to rules of hygiene including responsibility for their own accommodation space. 2. Knowledge and ability to clean the engine rooms and engines using the right cleansing materials. 3. Knowledge and ability to clean the outer parts, the hull and the decks of the vessel in the right order using the right materials according to environmental rules. 4. Ability to take care of the vessels refuse and the household waste disposal according to environmental rules.
3. Maintain technical devices according to technical instructions	<ol style="list-style-type: none"> 1. Knowledge and ability to maintain and take care of all technical equipment according to technical instructions. 2. Knowledge and ability to use maintenance programmes (including digital) under supervision.
4. Apply knowledge of production and qualities of different wires and ropes	Knowledge of characteristics of ropes and wires and ability to use and store them according to safe working rules.
5. Make knots and splices according to their use and maintain them	<ol style="list-style-type: none"> 1. Ability to splice wires and ropes. 2. Ability to apply knots according to their use. 3. Maintain wires and ropes.
6. Prepare and carry out working plans by teamwork and control the results	<ol style="list-style-type: none"> 1. Ability to carry out independently maintenance and simple repairs. 2. Ability to carry out more complex repairs under supervision. 3. Apply various working methods including team work according to safety instructions. 4. Ability to evaluate the quality of work.

OL 6. Communication

6.1 Performs general and professional communication. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Work with different materials and tools used for maintenance and repair operations	<ol style="list-style-type: none"> 1. Knowledge and ability to use the right tools and maintain equipment in the right way. 2. Ability to use relevant methods for “Vessels maintenance” including knowledge and use of differing materials.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	<ol style="list-style-type: none"> 3. Ability to correctly maintain and store tools and maintenance equipment. 4. Ability to conduct maintenance work according to safe working and environmental rules.
2. Apply knowledge of the use of cleansing and preserving agents regarding the protection of health and environment	<ol style="list-style-type: none"> 1. Knowledge and ability to clean all living spaces and keeping the household in a proper way complying to rules of hygiene including responsibility for their own accommodation space. 2. Knowledge and ability to clean the engine rooms and engines using the right cleansing materials. 3. Knowledge and ability to clean the outer parts, the hull and the decks of the vessel in the right order using the right materials according to environmental rules. 4. Ability to take care of the vessels refuse and the household waste disposal according to environmental rules.
3. Maintain technical devices according to technical instructions	<ol style="list-style-type: none"> 1. Knowledge and ability to maintain and take care of all technical equipment according to technical instructions. 2. Knowledge and ability to use maintenance programmes (including digital) under supervision.
4. Apply knowledge of production and qualities of different wires and ropes	Knowledge of characteristics of ropes and wires and ability to use and store them according to safe working rules.
5. Make knots and splices according to their use and maintain them	<ol style="list-style-type: none"> 1. Ability to splice wires and ropes. 2. Ability to apply knots according to their use. 3. Maintain wires and ropes.
6. Prepare and carry out working plans by teamwork and control the results	<ol style="list-style-type: none"> 1. Ability to carry out independently maintenance and simple repairs. 2. Ability to carry out more complex repairs under supervision. 3. Apply various working methods including team work according to safety instructions. 4. Ability to evaluate the quality of work.

6.2 Performs social behaviour. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Understand and follow instructions and to communicate with others in terms of shipboard duties	<ol style="list-style-type: none"> 1. Knowledge and ability to deal with formal and informal instructions, rules and procedures. 2. Knowledge and ability to follow-up orders given by the vessel's management. 3. Knowledge and ability to accompany inexperienced crewmembers in a practical way.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	4. Knowledge and ability to comply with company rules.
2. Contribute to good social relation and cooperation with others on board	1. Knowledge and ability to accept different cultural standards, values and habits. 2. Knowledge and ability to maintain social responsibilities. 3. Knowledge and ability to participate in team meetings and to assume the distributed tasks. 4. Knowledge and ability to respect sexually-related and cultural differences and to report related problems including mobbing and (sexual) harassment.
3. Accept social responsibility, conditions of employment, individual rights and duties, dangers of alcohol and drug abuse	1. Knowledge and ability to take initiative and act upon misconduct. 2. Knowledge and ability to be responsible and act upon potential dangers. 3. Knowledge and ability to work independently according to instructions. 4. Knowledge and ability to recognize the own individual workers' rights and duties. 5. Knowledge of the dangers of the use of alcohol and drugs in the working environment.
4. Plan, purchase and prepare simple meals	1. Knowledge and ability to plan and prepare simple meals including healthy nutrition regarding the time table of the ship. 2. Knowledge and ability to prepare simple meals according to hygienic rules.

OL 7. Safety, health and environmental protection

7.1 Works according to safe working rules and understands the importance of the care for safety, health and environment. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Understand the importance of following instructions regarding the safety at work and prevention of accidents	1. Knowledge and understanding of the advantages of safe working practices. 2. Knowledge and understanding of the nature of onboard hazards and ability to prevent them, for example: Movements of the ship; Provide safe embarking and disembarking the vessel (e.g. gangplank, ship's boat); Safely stow movable objects; Working with machinery; Recognize electric hazards; Fire precautions & fire fighting; Professional use of hand tools; Professional use of portable power tools; Comply with health and hygiene; Remove slips, falls and tripping hazards

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	<p>3. Knowledge and ability to apply relevant health and safety working provisions during activities that take place on board which might be hazardous to personnel or ship, for example:</p> <p>Loading/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> <p>4. Ability to understand orders and to communicate with others in relation to onboard duties.</p>
2. Apply knowledge of safety equipment to prevent accidents	<p>Knowledge and ability to use personal protective equipment, for example:</p> <p>Eye protection Respiratory protection Hearing protection Head protection; Hand and feet protection; Protective clothing.</p>
3. Take precautions to be taken before entering enclosed spaces	<p>1. Knowledge of the hazards associated with entry into enclosed spaces.</p> <p>2. Knowledge of tests/measurements to be carried out to determine whether or not an enclosed space has been made safe for entry and ability to apply the knowledge of:</p> <p>Holdes; Coffer dammes double hull.</p> <p>3. Knowledge of and ability to take precautions concerning work in enclosed spaces.</p>
4. Apply knowledge of national- and international regulations to prevent accidents and to protect health, safety and environment	<p>Knowledge of and ability to apply the national and international regulations concerning safe working conditions.</p>

7.2 Acknowledges the importance of training and acts immediately in case of emergencies and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of different types of emergency.	Knowledge of various types of emergency and ability to act according to the company/vessel instructions and procedures
2. Follow procedures in case of an alarm.	<ol style="list-style-type: none"> 1. Knowledge and ability to work with discipline according to company/vessel instructions in case of an alarm. 2. Knowledge and ability to handle accidents and emergencies according to company/vessel instructions and procedures.
3. Perform medical first aid	<ol style="list-style-type: none"> 1. Knowledge and ability to apply general principles of first aid on board of a vessel after assessment of a situation including ability to maintain physical and mental condition and personal hygiene. 2. Knowledge and ability to apply relevant measures in case of accidents in accordance with internationally recognised national requirements 3. Knowledge and ability to assess needs of casualties and threats to own safety 4. Appreciation of body structure and functions 5. Knowledge and ability to be aware of immediate measures to be taken in cases of emergency, including the ability to: <ol style="list-style-type: none"> (a) position casualty; (b) apply resuscitation techniques; (c) control bleeding ; (d) apply appropriate measures of basic shock management; (e) apply appropriate measures in event of burns and scalds, including accidents caused by electric current; (f) rescue and transport a casualty; (g) improvise bandages and materials in emergency kit.
4. Use and maintain personal safety equipment and shipboard live saving equipment	<ol style="list-style-type: none"> 1. Knowledge and ability to periodically check personal protection and rescue equipment on function, damage, wear and other imperfections. 2. Knowledge and ability to react in case of identified imperfections including relevant communication procedures. 3. Knowledge and ability to use personal life-saving appliances, for example: <ul style="list-style-type: none"> Life buoys including relevant equipment; Lifejacket including relevant equipment on lifejackets as fixed or flashing lights and whistle firmly secured by a cord. <p>Knowledge and ability to use various types of rescue boats</p>

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	4. Preparing, launching, sailing, recovering and stowing the rescue boats
5. Swim and assist in case of rescue operations	Knowledge and ability to use swimming skills
6. To use emergency escape routes	Knowledge and ability to keep escape routes free (knowledge of local features on board))
7. Use internal emergency communication and alarm systems	Knowledge of and ability to use emergency communication and alarm systems and equipment

7.3 Fire fighting. Takes precautions to prevent fire and uses in case of fire the fire fighting equipment and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Distinguish the elements of a fire and the classification	Knowledge of the possible causes of fire during different activities as well as knowledge of the classification of fires conform to the European Standard EN or equivalent
2. Distinguish types and sources of ignition	Knowledge of the elements of the combustion process and ability to apply the basics of fire fighting
3. Distinguish and use different types of fire extinguishers	Knowledge and ability to apply various methods of fire fighting and extinguish equipment and fixed installations for example: classes of fire extinguishers; use of different types of portable extinguishers influence of wind while approaching the fire.
4. Act according to shipboard fire fighting procedures and organisation	<ol style="list-style-type: none"> 1. Knowledge of and ability to fight fire 2. Knowledge of and ability to take relevant notification measures
5. Follows instructions concerning: outfit of a fire fighters, personal equipment, methods, extinguishing materials, procedure, breathing apparatus and its use during fire fighting and rescue operations	<ol style="list-style-type: none"> 1. Knowledge and ability to avoid personal dangers 2. Knowledge and ability to act according to the emergency procedure. 3. Knowledge of breathing apparatus and their use during fire fight and rescue operations

7.4 Performs duties taken into account the protection of the environment and is able to

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of regulations to protect the environment	<ol style="list-style-type: none"> 1. Basic knowledge of the national and international regulations concerning the protection of the environment. 2. Knowledge of and ability to use available documentation and information systems concerning environmental issues according to instructions. 3. Knowledge of the consequences of possible spills and pollutants into the surface and air environment. 4. Knowledge of dangerous goods and classifications with regards to environmental aspects.
2. Take precautions to prevent pollution of the environment	<ol style="list-style-type: none"> 1. Knowledge of and ability to apply general precautions to prevent pollution of the environment. 2. Knowledge and ability to apply safe bunkering procedures. 3. Knowledge and ability to take measures according to instructions in the event of collision for example by sealing of leaks.
3. Use materials in a economical and energy saving way	<ol style="list-style-type: none"> 1. Knowledge of efficient use of vessels energy consumption. 2. Knowledge and ability to use resources efficiently.
4. DISPOSE waste goods environmentally friendly	<ol style="list-style-type: none"> 1. Basic knowledge of relevant national and international regulations concerning waste. 2. Knowledge and ability to carry out the collection, delivery and consumption of: <ul style="list-style-type: none"> Oil and fat of ships; Cargo residues; Other types of waste goods.

ML 1. Navigation

The boatmaster chooses the most logical and economical sailing route to reach the loading and unloading destinations taking into account most efficient sailing time schedule according to actual circumstances.

1.1 Plans a journey on inland and maritime waterways and conducts navigation on European inland waterways. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Navigate on European inland waterways including locks	<ol style="list-style-type: none"> 1. Knowledge of national and international waterways used by inland navigation;

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
and lifts according to navigation agreements with agent.	Geographical location of rivers, canals, seaports, inland harbours and the relationship with cargo flows.
	2. Knowledge of CEMT classification of inland waterways; Dimensions of the waterway in relation to ships dimensions using modern information systems.
	3. Knowledge and ability to calculate water levels, depth and (air) draught using relevant information sources.
	4. Knowledge and ability to calculate distances and sailing time using Information sources concerning distances, locks, restrictions and sailing speed/time.
	5. Knowledge and ability to take into account the applicable manning requirements and mandatory professional qualifications of crew members including the need for additional qualifications such as a pilot.
	6. Knowledge of liability and insurance.
2. Respect and apply traffic regulations applicable to navigation on inland waterways to avoid damage.	Knowledge and ability to apply the rules of the road for the inland waterway which is sailed to avoid damage (collision) National and international police regulations applicable to the waterway which is sailed.
3. Consider economical and ecological aspects of the ship operation in order to use vessel efficiently and respect the environment.	Knowledge and awareness of the environmental aspects when sailing on inland waterways; Compliance with arrangements of an environmental friendly inland shipping, e.g. during bunkering, awareness of emission levels for engines. Knowledge of fuel consumption, fuel reduction monitoring, cruise control. Connection to shore electricity. Waste management.
4. Observe technical structures and profiles of the waterways and use precautions	Knowledge of the influence of engineering structures, waterway profiles and protection works on navigation; Various types of locks and the locking procedures. Various types of bridges, profiles of canals and rivers and the effect on navigation. Use of safe harbours and overnight ports.
5. Work with up-to-date charts/maps, Notices to Skippers/Mariners and other publications in order to determine vessel position exactly	1. Knowledge of basic navigation aids and ability to use them if applicable Dead reckoning. Piloting. Terrestrial and satellite navigation. Coordinates. Geodetic latitude and longitude. Horizontal geodetic datum. Difference of latitude and longitude. Distance and speed on Earth. Directions on the Earth, course, course over ground, course made good. Heading and bearing. Determination of the course. Determination of the course with wind effect. Determination of the course with effect of current. Plotting position sailing on route and bearings.
	2. Knowledge of nautical charts/maps Ability to use nautical charts considering factors relating to accuracy and chart reading such as chart date, symbols, soundings, bottom description, depths and datum's (WGS84). Ability to use international charts standards such as Inland Ecdis.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	<p>3. Knowledge of nautical publications</p> <p>Sailing directions, planning guides, Light lists, maritime safety information (MSI), notices to Mariners/Skippers. Publications for predicting tides and currents; tide tables, tide prediction for subordinate stations, finding height of tide at any time. Information on ice, high/low water levels, berths and port directory.</p>
6. Use tidal datum's, tidal currents, periods and cycles, time of tidal current and time of tide, variations across an estuary.	<p>Knowledge of tidal movement on maritime waterways and the ability to take influence on navigation into account.</p> <p>The influence of tidal movement on navigation such as origins of tides, tide and current, causes of tides, the Earth-Moon-Sun system. Tidal datum's; low water datum and high water datum. Tidal currents; tidal current periods and cycles, time of tidal current and time of tide, variations across an estuary.</p> <p>Knowledge and ability to use publications for predicting tides and currents; tide tables, tide prediction for subordinate stations, finding height of tide at any time.</p>
7. Use SIGNI (Signalisation de voies de Navigation Interieur) and IALA (International Association of Lighthouse Authorities) on maritime waterways for safe navigation	<p>1. Knowledge of the SIGNI and IALA buoyage and marking system and ability to use these systems in navigation.</p> <p>Buoyage direction. Numbering. Marking objects such as nautical superstructures. Lateral markings. Cardinal markings. Bifurcation buoys. Supplementary marks.</p> <p>Marking of danger points and obstacles. Marking the course of the fairway as well as channel. Entrances of harbours. Buoyage and illumination. Characteristics of illumination.</p>
8. Use of traffic supervision tools and ability to apply them	<p>1. Knowledge of and ability to use day and night signs such as lights to guide ships.</p> <p>2. Knowledge and ability to use inland AIS, -ECDIS, Electronic Reporting and Notices to Skippers/Mariners; RIS.</p> <p>3. Surveilled and non-surveilled VTS systems and its components, VHF channels, services, procedures.</p>

1.2 Sails and manoeuvres ensuring safe operation of the vessel in all conditions on inland and maritime waterways. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Navigate and manoeuvre taking into account geographical, hydrological, meteorological and morphological characteristics of the main inland waterways	<p>1. Knowledge of the hydrological and morphological characteristics of the main waterways.</p> <p>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. Longitudinal bars (e.g. groins), point bars, sills, deeper and shallow places; Reference water levels; fairway channel depth and width.</p> <p>2. The meteorological characteristics of the main inland waterways and the effects of climate change.</p>

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	<p>The weather forecast and warning services. Scale of Beaufort. District division for wind and storm warnings. Weather factors; air pressure, wind, high and low pressure areas, clouds. Types of fronts and passage of fronts. Ice warning, high water.</p>
<p>2. Give order to moor and unmoor vessels and to haul towage operations</p>	<p>1. Knowledge of the equipment and ability to initiate procedures of mooring and unmooring manoeuvres. Ensure that equipment on different types of vessels complies with requirements of ship's certificate.</p>
	<p>2. Ability to communicate with deck personnel Use of portable VHF, intercom systems and hand signals.</p>
<p>3. Apply local knowledge when conducting navigation</p>	<p>1. Ability to collect all information needed for safe navigation on special parts of rivers, tidal waters and canals. 2. Ability to interpret and use local navigation instructions in a proper way.</p>
	<p>3. Knowledge and application of special arrangements and sailing licences on parts of waterways (Stretches)</p>
<p>4. Provides ship's access to competent authorities in various situations.</p>	<p>Knowledge and ability to organise safe access to the ship sailing, moored or at anchor to receive the competent authority stairway, gangplank, ships boat/survival craft, fall protection and illumination.</p>
<p>5. Use modern electronic navigational aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction</p>	<p>1. Knowledge of and ability to use nautical sensors and indicators providing navigation information. (D) GPS, position, heading, course, speed, distance, depth. Inland Ecdis, radar, compass, turn indicator, etc.</p> <p>2. Knowledge of and ability to use River Information Services (RIS) and technologies. Inland AIS, -ECDIS, Electronic Reporting and Notices to Skipper, FIS (Fairway Information Services), TI (Traffic Information services), TM (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)</p>
<p>6. Apply knowledge and abilities to use radar navigation according to the regulations applicable on the waterway of sailing as well as modern navigation equipment to ensure safe vessel operation.</p>	<p>1. Knowledge and ability to use radar equipment according to applicable regulations and related instruments. 2. Ability to navigate on radar according to the regulations applicable to the waterway of sailing (for example the Rhine radar patent).</p>
<p>7. Consider effects of current, wind and water-levels in relation with interactions of crossing, meeting and overtaking vessels as well as ship-shore (canal effect) in</p>	<p>1. Knowledge of the influence of wind and current on sailing, manoeuvring or stationary vessels. The effect of wind e.g. cross wind when manoeuvring, also at nautical superstructures or when entering or leaving port and secondary waterways.</p> <p>2. Knowledge of the influence of current on sailing, manoeuvring, and stationary vessels on waterways used by inland navigation.</p>

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
order to determine draught.	The effect of current e.g. manoeuvring upstream and downstream with empty or loaded ships. Entering and leaving port or secondary waterway.
	3. Knowledge of the influence of water movement during sailing, manoeuvring and when stationary. The influence of water movement regarding draught subject to water depth. Reaction to shallow water effects e.g. by decreasing sailing speed. Understanding of interaction effects when sailing, manoeuvring and when stationary in a narrow fairway. Recognition of interaction effects relating to empty or loaded ships
	4. Knowledge of the effect of cargo handling and stowing conditions during sailing, manoeuvring and when stationary relating to stability. Trim, lop side, downflooding, lever principle, points of gravity
8. Use of propulsion and manoeuvring systems as well as appropriate communication and alarm systems	1. Knowledge of propulsion, steering and manoeuvring systems and their influence on the manoeuvrability and the ability to use them. 2. Knowledge of anchoring devices and ability to use them in various circumstances. 3. Knowledge of communication and alarm systems and ability to give instructions if necessary.

ML 1.3. Responds to navigational emergencies on inland and maritime waterways. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of precautions in an emergency when intentionally beaching a ship in order to prevent greater damage	1. Knowledge of shallow places and banks of sandy character that can be used to beach the vessel. 2. Ability to apply knowledge by adequate use of machines or anchoring devices
2. Apply knowledge of refloating a grounded ship with and without assistance	1. Knowledge and ability to take measures in the event of running aground including the sealing of leaks and the actions to be taken to redirect the ship into the fairway. 2. Knowledge and ability to redirect the ship with assistance of other ships, e.g. tug- or push vessels considering necessary contractual obligations
3. Apply knowledge of actions to be taken if collision is imminent	Knowledge and ability to navigate the ship when in an unavoidable collision situation in such a way that damage will be as less as possible to: Persons: for instance passengers and crewmembers. The colliding ship and other ships

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	Cargo environment
4. Apply knowledge of actions to be taken after a collision and assessment of damage control	<ol style="list-style-type: none"> 1. Knowledge and ability to take measures in the event of damage, collision and running aground including communication with shipping company, informing the competent authority and obtainment of allowance to sail to a position of recovering. 2. Knowledge and ability to determine the damage and to handle claim forms and reports

ML 1. 4 Uses VHF equipment during navigation on inland and maritime waterways. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of VHF communication and procedures contained in the (Basel) regional agreement concerning the radiotelephone service on inland waterways	<ol style="list-style-type: none"> 1. Knowledge of the international and national regulations for equipment, documents and certification and ability to use VHF and VHF controls. The components and controls of the VHF equipment. General radio regulations. Arrangements for radio secrecy. Procedure to obtain the ships radio license and mandatory documentation. 2. Knowledge and ability to apply VHF instruments Use of basic elements, choice of channel, measures to prevent disturbances, portable VHF system 3. Knowledge of and ability to apply VHF Frequency areas, radio traffic operations. simplex, duplex and semi-duplex transmitting and receiving methods. Categories of service (ship- ship, nautical information, ship- port authority and intra ship communication). Radio operators certificates. Methods for identification of IWW ship stations. Frequencies (channels) for use on IWW. Methods of TX and RX using simplex or duplex channels. Control and use of the portable VHF for intra ship communication. 4. Knowledge of correct order and ways of VHF communications of distress, urgency and safety traffic and ability to act according to the procedures. Radio communications are established and correct communication procedures are followed at all stages of calamity and rescue operations. 5. Knowledge and ability to use nautical, technical, safety-related standard vocabulary and sentences of “Riverspeak” during communications with authorities and other waterway users in calamity situations in case of communication deficits.
2. Apply knowledge of equivalent regulations on radiotelephone services.	<ol style="list-style-type: none"> 1. VHF operator certificate according to the regional Basel Agreement.

ML 2. Cargo handling, stowage and passenger transport.

2.1 Plans and ensures safe loading, stowage, securing, unloading and care of cargoes during the voyage. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of relevant national, European and international regulations, codes and standards concerning the operation of transporting cargoes	2. Knowledge and ability to apply the national and international regulations involving loading, unloading and transport operations. 3. Apply knowledge about logistics and multimodal transport.
2. Apply knowledge of the effect on trim and stability of cargoes and cargo operations	1. Knowledge and understanding of watertight integrity. 2. Knowledge and understanding of stability for all types of cargo and vessels.
3. Use calibration tables in order to assess effective tonnage, use stability and trim diagrams and stress calculating equipment, including ADB (Automatic Data-Based) to develop a stowage plan	Knowledge and ability to use dedicated software to determine stability, trim and stress tables, diagrams and stress-calculating equipment.
4. 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 (container) ships and tankers (N,C,G) and ability to interpret limits for bending moments and shear forces. 2. Knowledge and ability to compose stowage plans including the use of stowage software.
5. Control loading and unloading procedures with regard to a safe transport including procedures for sea transport	1. Knowledge and ability to stow and secure cargo including necessary cargo-handling gear and securing and lashing equipment 2. Implementation of composed stowage plan using all available shipboard data. 3. Proficiency in the various methods of determination of the cargo weight on cargo ships and tankers. 4. Proficiency in determination of the amount of loaded or discharged cargo. Calculation of the amount of cargo. 5. Proficiency to calculate the amount of liquid cargo in tanker vessels. 6. Proficiency to avoid the detrimental effects of inadequate cargo handling. 7. Apply knowledge about technical means for handling cargoes in/from ships and ports and labour safety

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
	measures during their use
6. 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.	<ol style="list-style-type: none"> 1. Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant safe working regulations. 2. Proficiency in establishing effective communications and working relationships with all partners involved in loading and unloading procedures.

2.2 Plans and ensures a safe transport of passengers and care during the voyage. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. To apply knowledge of relevant national, European and international regulations, codes and standards concerning the transportation of passengers	<ol style="list-style-type: none"> 1. Knowledge and ability to apply the applicable regulations and conventions regarding passenger transport. 2. Knowledge and proficiency to ensure safe embarking and disembarking of passengers, with special attention to the disabled and persons needing assistance. 3. Knowledge and ability to control proceedings in case of leakage, fire, man over board, collision and evacuation, including crisis and crowd management
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 and proficiency of responsibilities under international and national regulations affecting the safety of the ship, passengers and crew. 2. Knowledge and ability to implement shipboard personnel management and training with respect to safety. 3. Knowledge and proficiency applying medical first aid on board ship.
3. Apply knowledge of impacts on stability of the ship in relation to weight distribution of passengers, behaviour and communication with passengers.	<ol style="list-style-type: none"> 1. Knowledge and ability to apply rules and regulations with regards to stability. 2. Knowledge and ability to apply relevant measures regarding the watertight integrity including influence on trim and stability of passenger vessels. 3. Knowledge and understanding of ships' design relating to trim and stability and actions to be taken in the event of partial loss of intact buoyancy of passenger vessels. 4. Knowledge and use of standardised phrases (Riverspeak) for evacuation of passengers in case of emergency.
4. Define and monitor on-board risk analysis of limited access for passengers as well as compilation of 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 ships certificate. 2. Knowledge of safety and security systems preventing unauthorised access. 3. Ability to organize watchkeeping (i.e. night watch) systems with respect to safety and security

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
5. Analyse reports given by passengers (i.e. unforeseen occurrences, defamation, vandalism) in order to support strategic decisions.	<ol style="list-style-type: none"> 1. Knowledge and ability to prevent environmental pollution by passengers and crew 2. Basic knowledge and ability to handle complaint and conflict management. 3. Ability to communicate with shipboard personnel and all interacting parties.

ML 3. Controlling the operation of the ship

3.1 Building, construction and operation of various types of ships. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of inland waterway ship building and construction	<ol style="list-style-type: none"> 1. Knowledge and ability to operate the vessel according to different applicable dimensions and construction legislations. 2. Knowledge and ability to supervise the compliance of the vessel taking into account construction works according the applicable legislation.
2. Distinguish construction methods of ships and their behaviour in the water, especially in terms of stability and strength	<ol style="list-style-type: none"> 1. Knowledge and ability to read and understand the construction drawings of various types of IWT vessels and know what the effect of the construction is to their behaviour and their stability and strength. 2. Knowledge and ability to understand the vessel's behaviour in various conditions and environments. 3. Knowledge and ability to supervise the vessel's watertight integrity and to instruct accordingly.
3. Apply knowledge of structural parts of ship and identification theory of, i.e. for damage control and analysis	<ol style="list-style-type: none"> 1. Knowledge and ability to monitor the vessel's core elements for the different types of transport and instruct accordingly. 2. Knowledge and understanding of the longitudinal and transversal structure and local reinforcements in order to prevent and analyze damage. 3. Knowledge and ability to understand and control the functions of the equipment and usage of different holds and compartments in order to prevent and analyze damage.
4. Apply knowledge of the ship's watertight integrity	Knowledge and ability to manage the vessels water tightness in relation to ships construction and stability plans and to instruct the crew accordingly.

**3.2 Controls and monitors the mandatory equipment as mentioned in the ship's certificate of investigation.
Is able to:**

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply knowledge of functionalities of deck equipment and lifting facilities (cranes);	Knowledge and ability to use and control all deck equipment including lifting facilities, safety equipment etc. in relation to their functionalities according to (inter) national legislation and owners orders and to instruct and supervise accordingly.
2. Apply knowledge of specific requirements for transport of goods with tankers, passenger ships, tug boats and push barge combinations	1. Knowledge and ability to apply the specific requirements relating to ship construction and equipment needed for the transport of different goods with different types of vessels according to (inter) national legislation including passenger transport and to instruct and supervise accordingly. 2. Knowledge and ability to instruct and supervise the correct application of the requirements of the ship's certificate.

ML 4. Marine engineering and electrical; electronic and control engineering

4.1 Plans the workflow and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Apply technical knowledge of the functionality of the main engines and auxiliary equipment and their control systems.	1. Knowledge and understanding of operation of main engine and auxiliary equipment installations 2. Knowledge and understanding of characteristics of fuels and lubricants 3. Knowledge and understanding of control systems 4. Technical knowledge of and ability to use various systems of different propulsion systems and auxiliary machinery including associated system.
2. Monitor and control crew members when operating and maintaining the main engines and auxiliary equipment including pumps, piping systems, steering mechanisms.	1. Knowledge and ability to manage the crew with respect to operating and maintaining technical equipment. 2. Knowledge and ability to manage start up and shut down main propulsion and auxiliary machinery including associated systems.

4.2 Monitors main engines and auxiliary equipment and is able to:

<i>COMPETENCE</i>	<i>KNOWLEDGE, UNDERSTANDING AND PROFICIENCY</i>
1. Give instructions to prepare main engines and auxiliary equipment.	<ol style="list-style-type: none"> 1. Knowledge and ability to instruct the crew in preparation and operation of main and auxiliary machinery 2. Knowledge and ability to set-up and monitor check lists and to give instructions to properly use such check lists. 3. Knowledge and ability to instruct crew on principles to be observed during engine surveillance
2. Detect malfunctions, common faults and take actions to prevent damage.	<ol style="list-style-type: none"> 1. Knowledge and ability to respond to machinery malfunction 2. Knowledge and ability to instruct actions to be taken in order to prevent damage or to take measures for damage control
3. Apply knowledge of material sciences as well as physical and chemical conditions of oil and other lubricants	<ol style="list-style-type: none"> 1. Knowledge and understanding of the characteristics of the materials used 2. Knowledge and understanding of applying oil and other lubricants according to their specifications 3. Knowledge and understanding of machinery handbooks 4. Operational characteristics of equipment and systems
4. Apply technical knowledge on the evaluation of engines performance	Knowledge and ability to interpret and apply engineering publications and manuals to evaluate engine(s) performance and operate engine(s) appropriately

4.3 Plans and gives instructions for ballast procedures in relation to the ship's pumping and pumping control system. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Monitor routine pump works, ballast and loading pump systems.	<ol style="list-style-type: none"> 1. Knowledge and understanding of pumping systems and pumping operations. 2. Ensures monitoring of safe operation of bilge, ballast and cargo pumping systems including adequate instructions to the crew

4.4 Organises safe use and application, maintenance and repair of the ship's electro-technical devices. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Prevent potential damages on electric and electronic devices on board due to knowledge of malfunctions and common faults in ship electro-technology.	<ol style="list-style-type: none"> 1. Knowledge and understanding of electro technology, electronics and electrical equipment and safety devices to prevent damages 2. Automation, instrumentation and control systems 3. Application of safe working practices in the workshop environment
2. Test control systems and instruments to recognize faults and at the same time take actions to repair and maintain electric or electronic control equipment like automation.	Knowledge and understanding of operation, testing and maintenance of control systems and take appropriate measures
3. Give instructions to crew members in the pre- and after activities to connect or disconnect technical shore based facilities	<ol style="list-style-type: none"> 1. Knowledge and understanding of safety requirements for working with electrical systems. 2. Knowledge and understanding of the construction and operational characteristics of shipboard electrical systems and equipment in relation to shore based facilities including appropriate instructions. 3. Recognise dangerous situations with regards to shore based facilities and instruct accordingly.

4.5 Controls the safe maintenance and repair of technical devices and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Ensure appropriate use of tools to maintain and repair technical devices	Knowledge and ability to organize and instruct safe maintenance and repair using appropriate procedures, (control) equipment and software
2. Assess characteristics and limits of materials as well as necessary procedures which are used to maintain and repair technical devices;	Knowledge and ability to apply information on materials and repair procedures according to manuals.
3. Evaluate technical and internal documentation	Adequate knowledge and understanding of construction specifications and technical documentation and ability to set-up check lists

ML 5. Competencies Maintenance and Repair

Organizes safe maintenance and repair procedures of the ship and its equipment. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Control safe behaviour of crew members with regard to properties and use of materials and additives	<ol style="list-style-type: none"> 1. Knowledge and ability to manage safe and effective maintenance and repair procedures. 2. Monitor and control crew to apply precautions and contribute to the prevention of pollution of the marine environment. 3. Knowledge and ability to apply and observe the applicable labour regulations and safe working rules.
2. Define, monitor and control work orders so that crew members are able to perform maintenance and repair works independently	<ol style="list-style-type: none"> 1. Knowledge and ability to plan cost effective and efficient maintenance works considering statutory requirements. 2. Knowledge and ability to use digital maintenance planning programmes effectively. 3. Control the cleaning of the ships inner and outer parts considering applicable legal requirements such as safety data sheets. 4. Knowledge and ability to manage the ships hygiene according to labour regulations. 5. Organises the ships waste management taking into account environmental regulations such as the CDNI. 6. Elaborate the monthly and annual program of maintenance for the vessel. 7. Monitor and control the technical documents of the vessel.
3. Order, buy and control material and tools considering health and environmental protection, i.e. conservation or cleaning materials	<ol style="list-style-type: none"> 1. Knowledge and ability to keep a digital administration of the vessel's stocks. 2. Organisation of a safe working system on board including knowledge of the regulations applying to the use of hazardous materials for cleaning and conservation works. 3. Check the quality of the repairs.
4. Control if wires and ropes are being used according to their manufacturing properties and intended purpose. And repair or replace them if required	Ability to instruct and supervise the crew in accordance with the working procedures and safety limitations when using ropes and wires according to vessels certificate and datasheets.

ML 6. Communication

6.1 Performs human resource management and social responsibility for staff, takes care of organisation and training on board, assures at all-time good communication. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Organize and stimulate teambuilding and coach the crewmembers and instruct crew in order to be understood in relation to shipboard duties and if necessary take disciplinary measures	<ol style="list-style-type: none"> 1. Knowledge of human resource management and ability to use it for crew management. 2. Knowledge and ability to give orders to the crew in an appropriate and professional way. 3. Knowledge and ability to explain given instructions to the crew 4. Knowledge and ability to give feedback to the crew about professional and social behaviour on board. 5. Knowledge and ability to apply task and workload management, including: planning and co- ordination, personnel assignment, time and resource constraints, prioritization. 6. Knowledge and ability to recognize and prevent fatigue.
2. Guide crew on information- and communication systems on board including internet for the operation of the ship	<ol style="list-style-type: none"> 1. Knowledge and ability to instruct the crew in using the VHF systems (main and portable) for inter and intra ship traffic and ship shore and terminal operation communication. 2. Knowledge and ability to instruct the crew to use the vessels intercom. 3. Knowledge and ability to instruct the crew to use the vessels (mobile) telephone system. 4. Knowledge and ability to instruct the crew to use the vessels radio/ TV /satellite system. 5. Knowledge and ability to instruct the crew to use the vessels computer system(s).
3. Collect, save and manage data with regard to data protection laws	<ol style="list-style-type: none"> 1. Knowledge and ability to manage the use of all the vessels computer system(s) to collect and store data according to company rules. 2. Knowledge and ability to store and manage data according to professional secrecy. 3. Knowledge and ability to manage the use and the storage of data according to relevant protection laws.
4. Describe circumstances by using relevant technical terminology in first language or if necessary in English (Riverspeak)	<ol style="list-style-type: none"> 1. Knowledge and ability to use relevant technical and nautical terms in the native language and in English (Riverspeak). 2. Knowledge and ability to master the native language and English (Riverspeak) in writing and speech.

6.2 Uses “Riverspeak” in situations with communication problems and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Retrieve, evaluate and use information with relevance to safety on board as well as nautical- technical issues	<ol style="list-style-type: none"> 1. Knowledge and ability to handle all distress, emergency and safety communication. 2. Knowledge and ability to use the standard navigation phrases of Riverspeak.

6.3 Cares for a well-balanced and social working atmosphere on board and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Take social responsibility for crew members and realize added value of a well-balanced working atmosphere on board; be considerate of individual rights and duties of crew members, mediate and solve inter relational issues and disputes	<ol style="list-style-type: none"> 1. Knowledge and ability to take the lead in organizing team meetings to keep the social atmosphere on board well balanced. 2. Knowledge and ability to take the responsibility in maintaining company rules. 3. Knowledge and awareness of gender-related and cultural differences. 4. Knowledge and ability to guide students and trainees on various levels. 5. Knowledge and ability to apply basic team working principles and practice including conflict management.
2. Adhere to national, European and international social legislation	<ol style="list-style-type: none"> 1. Knowledge and ability to apply the various national, European and international social laws. 2. Knowledge and ability to educate crew members in using relevant parts of applicable social legislation.
3. Follow strict alcohol and drug prohibition and react appropriately in cases of infringements, take responsibility and demonstrate consequences of misbehavior	<ol style="list-style-type: none"> 1. Knowledge and ability to communicate and ensure compliance with applicable legislation and company rules concerning alcohol and drugs. 2. Knowledge and ability to react appropriately upon violation of legislation or company rules.
4. Organize preparation of meals on board after consultation of crew members, plan shopping possibilities according to suitable berths	<ol style="list-style-type: none"> 1. Knowledge and ability to instruct crew members in planning and preparing meals. 2. Knowledge and ability to instruct and control crew members on hygienic standards. 3. Knowledge and ability to instruct crew members in planning shopping possibilities.

ML 7. Safety, health and environmental protection

7.1 Monitors and controls the applicable legislative requirements and measures to ensure safety of live. Is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Adhere to national and international legislation and takes appropriate measurements for the care of health protection and the prevention of accidents.	Knowledge and ability to apply the company safety procedures based on the (inter) national legislation in the field of safety, environment and working conditions.
2. Control and monitor validity of the ship's certificate and other documents to be carried on board.	Knowledge and ability to keep the validity of certificates and other documents to be carried on board.
3. Comply with safety regulations during all working procedures by using relevant safety measures in order to avoid accidents.	<ol style="list-style-type: none"> 1. Knowledge of safe working practices and ability to organize safe working procedures. 2. Ability to motivate and monitor crewmembers to apply safe working rules.
4. Control and monitor all safety measures necessary for cleaning closed spaces before persons open, enter and clean those facilities.	<ol style="list-style-type: none"> 1. Knowledge and ability to organise safety control and monitor safety procedures if crew or other persons enter into enclosed spaces including watch keeping. 2. Knowledge and ability to conduct a risk assessment before entering into enclosed spaces. 3. Knowledge of precautions to take before entering an enclosed space and while work is being carried out in an enclosed space, for example: <ul style="list-style-type: none"> Hazards of enclosed spaces Atmosphere tests prior to entry Control of entry into enclosed spaces Safeguards for enclosed space entry Respiratory protective equipment Work in enclosed spaces 4. Knowledge and ability to take appropriate actions in the event of an emergency.

7.2 Maintains safety and security for people on board and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. To apply the rules of life saving appliances for victims and own personal safety	Knowledge and ability to apply the rules of life saving appliances for victims and own personal safety.
2. Organise training exercises for behaviour in for example situations of fire, emergencies, damages, leakage warning, explosion, collision, "Man over Board" and evacuation of the ship in order to limit damage;	<ol style="list-style-type: none"> 1. Knowledge and ability to instruct crew members for emergency procedures. 2. Knowledge and ability to organise regular training of the crew on board the vessel in the preparation of an emergency situation including organization of fire fighting and abandon ship drills.
3. Give instructions related to fire prevention, personal protection equipment, methods, fighting material, respirators and possible application of these devices in emergencies	<ol style="list-style-type: none"> 1. Knowledge and ability to apply relevant regulations on fire detection systems; fixed fire- extinguishing systems; portable and mobile fire-extinguishing equipment including appliances, pumps and rescue, salvage, life support, personal protective and communication equipment. 2. Knowledge and ability to control the monitoring and maintenance of fire detection and extinguishing systems and equipment. 3. Ability to instruct the crew 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. Knowledge and ability to organise and apply immediate first aid in the event of accident or illness on board 2. Knowledge of the term "emergency" especially taking into consideration the significance of oxygen for human life. 3. Knowledge and ability to apply the statutory and moral obligation for providing assistance. 4. Knowledge and ability to estimate own risk situations in emergency situations and initiate adequate own protective measures. 5. Knowledge of the rescue chain. 6. Knowledge and ability to explain various means of reporting and fully deal with an emergency using these.

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
5. Establish an effective on-board system to control life saving appliances and correct application of personal protection clothing	<ol style="list-style-type: none"> 1. Knowledge and ability to apply life- saving appliance and safe working condition regulations. 2. Knowledge and ability to apply maintenance and periodic checks of operational condition of life- saving, fire-fighting and other safety equipment and systems. 3. Knowledge and ability to motivate and control the correct use of (personal) safety equipment by crewmembers.
6. Recognise dysfunctions on board, evaluate them and take appropriate actions to restore operation of ship.	<ol style="list-style-type: none"> 1. Knowledge and ability to check all (safety) systems on operational functions. 2. Organisation of actions to be taken in case of a dysfunction.

7.3 Sets-up emergency and damage control plans and handles emergency situations and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Initiate preparations for rescue plans of different types of emergencies in order to instruct the crew correctly	<ol style="list-style-type: none"> 1. Knowledge of different types of emergencies which may occur, such as collision, fire, flooding, sinking. 2. Knowledge and ability to organize shipboard contingency plans for response to emergencies and ability to assign specific duties to crew members including monitoring and control.
2. Train on methods to prevent fire, recognition of origin of fire and fire fighting according to different competencies of crew members	<ol style="list-style-type: none"> 1. Knowledge and ability to use fire- fighting procedures with particular emphasis on tactics and command. 2. Knowledge of the use of water for fire-extinguishing with regard to the effect on ship stability and ability to take corrective procedures. 3. Knowledge and ability to communicate and coordinate during fire-fighting operations including external organisations.
3. Training with life saving appliances	Knowledge of particular characteristics and facilities of rescue devices including launching and recovering rescue boats.
4. Give instructions on rescue plans, escape routes and internal communication and alarm systems	Knowledge and ability to give instructions on rescue plans, escape routes and internal communication and alarm systems.

7.4 Ensures compliance with requirements for environmental protection and is able to:

<i>Competence</i>	<i>Knowledge, understanding and proficiency</i>
1. Take precautions to prevent environmental pollution and use relevant equipment	<ol style="list-style-type: none"> 1. Knowledge and ability to apply precautions that can be taken to prevent pollution of the environment. 2. Knowledge and ability to apply safe bunkering procedures. 3. Knowledge and ability to take measures and instruct the crew in the event of damage, collision and running aground including the sealing of leaks.
2. Adhere to valid environmental protection laws to prevent pollution of the environment	<ol style="list-style-type: none"> 1. Knowledge and ability to apply national and international environmental regulations. 2. Motivate the crew to take relevant measures for an environmental friendly behavior.
3. Use equipment and materials in an economical and environmental friendly way	Knowledge and ability to instruct crew in using equipment and materials in a economical and environmental friendly way.
4. Instruct and monitor sustainable waste disposal	<ol style="list-style-type: none"> 1. Knowledge and ability to apply procedures ensuring sustainable waste disposal and to instruct crew accordingly. 2. Organisation and monitoring of necessary measures to be taken.