

ANNEX I

STANDARDS FOR COMPETENCES AND CORRESPONDING KNOWLEDGE AND SKILLS

I. STANDARDS OF COMPETENCE FOR THE OPERATIONAL LEVEL

1. Navigation

- 1.1. The boatman shall be able to assist the management of the craft in situations of manoeuvring and handling a craft on inland waterways. The boatman shall be able to do so, on all types of waterways and all types of ports.

In particular, the boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. assist with mooring, unmooring and hauling (towage) operations;	<ol style="list-style-type: none"> 1. Knowledge of equipment, material and procedures used on board for mooring, unmooring and hauling (towage) operations. 2. Ability to use required equipment on board e.g. bollards and winches for mooring and unmooring and hauling manoeuvres. 3. Ability to use materials available on board such as ropes and wires considering relevant safety measures including the use of personal protective and rescue equipment. 4. Ability to communicate with the wheelhouse using intercom communication systems and hand signals. 5. 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. 6. 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.
2. assist with coupling operations of push barge combinations;	<ol style="list-style-type: none"> 1. Knowledge of equipment, material and procedures used for coupling operations.

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		<ol style="list-style-type: none"> 2. Ability to connect and disconnect push/barge combinations using required equipment and materials. 3. Knowledge of safe working rules including the use of personal protective and rescue equipment. 4. Ability to apply safe working rules and to communicate with crew members involved.
3.	assist with anchoring operations;	<ol style="list-style-type: none"> 1. Knowledge of anchoring equipment, materials and procedures in various circumstances. 2. Ability to assist with anchor manoeuvres, e.g. prepare anchor equipment for anchoring operations, to present anchor, to give sufficient amount of cable or chain to veer initially, to determine when the anchor holds the craft at its position (anchor bearing), to secure anchors on the completion of anchoring, to use dragging anchors in various manoeuvres and to handle the anchor signs. 3. Knowledge of safe working rules including the use of personal protective and rescue equipment.
4.	steer the craft complying with helm orders, using steering gear properly;	<ol style="list-style-type: none"> 1. Knowledge of functions and types of various propulsion and steering systems. 2. Ability to steer craft under supervision and comply with helm orders.
5.	steer the craft complying with helm orders, taking the influence of wind and current into account;	<ol style="list-style-type: none"> 1. Knowledge of the influence of wind and current on sailing and manoeuvring. 2. Ability to steer the craft under supervision taking into account the influence of wind on sailing and manoeuvres in waterways with or without currents and with wind characteristics.
6.	use navigational aids and instruments under supervision;	<ol style="list-style-type: none"> 1. Knowledge of the navigation aids and instruments such as rudder indicator, radar, rate of turn indicator, sailing speed indicator. 2. Ability to use the information provided by navigation aids such as light and buoyage system and charts.

	<p>3. Ability to use navigation instruments such as compass, rate of turn indicator and sailing speed indicator.</p>
<p>7. undertake necessary actions for safety of navigation;</p>	<p>1. Knowledge of safety regulations and checklists to follow in dangerous and emergency situations.</p> <p>2. Ability to recognise and respond to unsafe situations and follow-up actions according to the safety regulations.</p> <p>3. Ability to immediately warn the craft's management.</p> <p>4. Ability to use personal protective and rescue equipment.</p> <p>5. Knowledge of verification commissioned by the supervisor regarding the presence, usefulness, watertightness and securing of the craft and its equipment.</p> <p>6. Ability to execute the work according to the checklist on deck and living quarters such as waterproofing and securing of the hatches and holds.</p> <p>7. Ability to execute the work according to the checklist in the engine room; to store and secure loose items, to fill the day service tanks and check vents.</p>
<p>8. describe the characteristics of main European inland waterways, ports and terminals for voyage preparation and steering;</p>	<p>1. Knowledge of the most important national and international inland waterways.</p> <p>2. Knowledge of the main ports and terminals located in the European inland waterway transport (IWT) network.</p> <p>3. Knowledge of the influence of engineering structures, waterway profiles and protection works on navigation.</p> <p>4. Knowledge of the classification characteristics of rivers, canals and inland waterways of maritime character: bottom width, bank type, bank protection, water level, water movement, vertical and horizontal bridge clearance and depth.</p> <p>5. Knowledge of navigational aids and instruments needed when</p>

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		<p>navigating on inland waterways with maritime character.</p> <p>6. Ability to explain the characteristics of various types of inland waterways for voyage preparation and steering.</p>
9.	respect the general provisions, signals, signs and marking system;	<p>1. Knowledge of agreed set of rules applicable in inland navigation and 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 the buoyage and marking system SIGNI (Signalisation de voies de Navigation Intérieure) and IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) part A.</p>
10.	follow procedures while passing locks and bridges;	<p>1. Knowledge of the shape, layout and facilities of locks and bridges, lockage (locking process), types of locks, bollards and stairs, etc.</p> <p>2. Ability to apply procedures during approach, entering, locking and leaving the lock or bridge.</p>
11.	use systems of traffic control.	<p>1. Knowledge of various traffic control systems in use such as day and night signs on locks, weirs and bridges.</p> <p>2. Ability to identify day and night signs on locks, weirs and bridges and to follow instructions of the competent authority such as bridge- and lockkeepers and traffic control operators.</p> <p>3. Ability to use radio equipment in emergency situations.</p> <p>4. Knowledge of Inland Automatic Identification System (AIS) and Inland Electronic Chart and Display Information System (ECDIS).</p>

2. Operation of the craft

- 2.1. The boatman shall be able to assist the management of the craft in controlling the operation of the craft and in the care of persons on board.

The boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. distinguish various types of craft;	<ol style="list-style-type: none"> 1. Knowledge of most common types of craft including convoys used in European IWT and their corresponding construction, dimensions and tonnages. 2. Ability to explain the characteristics of the most common types of craft including convoys sailing in European IWT.
2. apply knowledge of the construction of inland waterway craft and their behaviour in water, especially in terms of stability and strength;	<ol style="list-style-type: none"> 1. Knowledge of the effects of the craft's movement in various circumstances caused by longitudinal and transversal stresses and of different loading conditions. 2. Ability to explain the craft's behaviour in different loading conditions, related to the craft's stability and strength.
3. apply knowledge of the craft's structural parts and identify the parts by name and function;	<ol style="list-style-type: none"> 1. Knowledge of the craft's structural elements with respect to the transport of different types of cargo and passengers, including the longitudinal and transversal structure and local reinforcements. 2. Ability to name the craft's structural parts and to describe their functions.
4. apply knowledge of the craft's watertight integrity;	<ol style="list-style-type: none"> 1. Knowledge of watertight integrity of IWT craft. 2. Ability to check watertight integrity.
5. apply knowledge of the documentation required for the craft's operation.	<ol style="list-style-type: none"> 1. Knowledge of the craft's obligatory documentation. 2. Ability to explain their importance in relation to (inter)national requirements and legislation.

2.2. The boatman shall be able to use the equipment of the craft.

The boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. use anchors and handle anchor winches;	<ol style="list-style-type: none"> 1. Knowledge of different kinds of anchors and anchor winches used on board craft. 2. Ability to name and recognise different kinds of anchors and

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		3. anchor winches used on board craft and explain their specific use. Ability to safely handle different types of anchors and anchor winches in various situations and conditions.
2.	use deck equipment and lifting devices;	1. Knowledge of equipment used on deck of craft such as (coupling) winches, hatches, lifting devices, car cranes, pipe systems, fire hoses, etc. 2. Ability to name and recognise deck equipment and lifting devices and explain their specific use. 3. Ability to safely handle deck equipment and lifting devices.
3.	use equipment specific to passenger vessels.	1. Knowledge of specific construction requirements, equipment and devices for passenger vessels. 2. Ability to name and recognise equipment used on board passenger vessels only and explain its specific use. 3. Ability to safely handle equipment used on board passenger vessels.

3. Cargo handling, stowage and passenger transport

- 3.1. The boatman shall be able to assist the management of the craft in the preparation, stowage and monitoring of cargo during loading and unloading operations.

The boatman shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. read stowage and stability plans;	1. Knowledge of the impact of types of cargo on stowage and stability plans. 2. Knowledge of stowage and stability plans. 3. Ability to understand stowage plans. 4. Knowledge of numbering and divisions of the holds of dry cargo vessels and of the tanks of tanker vessels (N, C or G), and knowledge of stowing the various types of cargo. 5. Ability to identify labelling of dangerous goods according to the European Agreement concerning the International Carriage of

		Dangerous Goods by Inland Waterways (ADN).
2.	monitor the stowage and securing of cargo;	<ol style="list-style-type: none"> 1. Knowledge of the methods of stowing the craft with various cargoes in order to ensure safe and efficient transport. 2. Knowledge of procedures to prepare the craft for loading and unloading operations. 3. Ability to safely apply loading and unloading procedures, i.e. by opening or closing the holds, perform watch-keeping on deck during loading and unloading operations. 4. Ability to establish and maintain effective communications during loading and unloading. 5. Knowledge of the effect of cargo on the stability of the craft. 6. Ability to monitor and report damage of cargo.
3.	distinguish various types of cargo and their qualities;	<ol style="list-style-type: none"> 1. Knowledge of various types of cargo, for example break bulk cargo, liquid bulk cargo and heavy goods, etc. 2. Knowledge of the logistic chain and multimodal transport. 3. Ability to prepare craft operation connected to loading and unloading procedures e.g. communicate with land side and prepare hold.
4.	use of ballast system;	<ol style="list-style-type: none"> 1. Knowledge of the function and use of the ballast system. 2. Ability to use ballast system for example by filling or emptying the ballast tanks.
5.	check the amount of cargo;	<ol style="list-style-type: none"> 1. Knowledge of manual and technical methods of determination of the cargo weight on various types of craft. 2. Knowledge of methods to determine the amount of cargo loaded or unloaded. 3. Knowledge of the calculation of the amount of liquid cargo using the soundings or tank tables, or both. 4. Ability to read draught marks and draught scales.

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<p>6. work according to regulations and safe working rules.</p>	<ol style="list-style-type: none"> 1. Knowledge of safe working rules and procedures applicable during preparation, loading and discharging phase of craft with various types of cargoes. 2. Ability to comply with safe working rules and procedures applicable during loading and unloading and to use personal protective and rescue equipment. 3. Ability to establish and maintain effective verbal and non-verbal communications with all partners involved with loading and unloading procedures. 4. Knowledge about technical means for handling cargoes in craft and ports and from craft and ports, and labour safety measures during their use.
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- 3.2. The boatman shall be able to assist the management of the craft in providing services to passengers and provide 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 of the European Parliament and of the Council⁽¹⁾.

The boatman shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. respect regulations and conventions regarding passenger transport;</p>	<ol style="list-style-type: none"> 1. Knowledge of the applicable regulations and conventions regarding passenger transport. 2. Ability to provide 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>2. assist in safe movement of passengers when embarking and disembarking;</p>	<ol style="list-style-type: none"> 1. Knowledge of procedures applying before and during embarkation and disembarkation of passengers. 2. Ability to position and place the embarkation and disembarkation equipment and to apply safety measures.
<p>3. assist in supervising passengers during emergency situations;</p>	<ol style="list-style-type: none"> 1. Knowledge of existing life-saving equipment for emergency situations, of procedures to follow in case of leakage, fire, person over

		<ol style="list-style-type: none"> 2. board, evacuation including crisis and crowd management and of medical first aid on board vessel. 2. Ability to assist in the case of leakage, fire, man over board, collision and evacuation including crisis and crowd management, to use life- saving equipment in emergency situations and to perform medical first aid on board vessel.
4.	communicate effectively with passengers.	<ol style="list-style-type: none"> 1. Knowledge of standardised communication phrases for evacuation of passengers in the case of emergency. 2. Ability to use service-oriented behaviour and language.

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

4.1. The boatman shall be able to assist the management of the craft in marine, electrical, electronic, and control engineering to ensure general technical safety.

The boatman shall be able to:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	assist in monitoring the engines and propulsion system;	<ol style="list-style-type: none"> 1. Knowledge of principles of propulsion system. 2. Knowledge of different types of engines and their construction, performance and terminology. 3. Knowledge of the function and operation of air delivery, fuel delivery, lubrication, cooling and engine exhaust system. 4. Knowledge of main and auxiliary engines. 5. Ability to carry out basic checks and ensure regular functioning of engines. 	
2.	prepare main engines and auxiliary equipment for operation;	<ol style="list-style-type: none"> 1. Knowledge of starting systems of main engines, auxiliary equipment and hydraulic and pneumatic systems according to instructions. 2. Knowledge of principles of reversing systems. 3. Ability to prepare the machinery in the engine room according to checklist for departure. 4. Ability to use the starting system and auxiliary equipment according 	

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		<p>to instructions, e.g. steering equipment.</p> <p>5. Ability to start the main engines following starting procedures.</p> <p>6. Ability to use hydraulic and pneumatic systems.</p>
3.	react adequately to malfunctions of engines;	<p>1. Knowledge of control equipment in the engine room and of reporting procedures for malfunctions.</p> <p>2. Ability to recognise malfunctions and to take appropriate measures in the case of malfunction including reporting to the craft's management.</p>
4.	operate machinery including pumps, piping systems, bilge and ballast systems;	<p>1. Knowledge of safe operation and of control of the machinery in the engine room, ballast compartments and bilge following procedures.</p> <p>2. Ability to control the safe function, operation of machinery in the engine room and to maintain the bilge and ballast system including: reporting incidents associated with transfer operations and ability to correctly measure and report tank levels.</p> <p>3. Ability to prepare and operate shut-off-operations of the engines after operation.</p> <p>4. Ability to operate pumping bilge, ballast and cargo pumping systems.</p>
5.	assist in monitoring electronic and electrical devices;	<p>1. Knowledge of electronic and electrical systems and components.</p> <p>2. Knowledge of AC and DC current.</p> <p>3. Ability to monitor and evaluate control instruments.</p> <p>4. Knowledge of magnetism and the difference between natural and artificial magnets.</p> <p>5. Knowledge of electro hydraulic system.</p>
6.	prepare, start, connect and change generators, and control their systems and shore supply;	<p>1. Knowledge of the power installation.</p> <p>2. Ability to use switchboard.</p> <p>3. Ability to use shore supply.</p>
7.	define malfunctions and common faults, and describe the actions to prevent damage;	<p>1. Knowledge of malfunctions outside the engine room and of procedures to follow to prevent damage and procedures to follow if malfunctions occur.</p>

	2. Ability to identify common faults and take action to prevent damage to mechanical, electrical, electronic, hydraulic and pneumatic systems.
8. use required tools to ensure general technical safety.	<ol style="list-style-type: none"> 1. Knowledge of characteristics and limitations of processes and materials used for maintenance and repair of engines and equipment. 2. Ability to apply safe working practices when maintaining or repairing engines and equipment.

4.2. The boatman shall be able to perform maintenance work on marine, electrical, electronic, and control engineering equipment to ensure general technical safety.

The boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. perform the daily maintenance work on the main engines, auxiliary machinery and control systems;	<ol style="list-style-type: none"> 1. Knowledge of procedures to follow for maintenance and good care of the engine room, main engine, main machinery, auxiliary equipment and control systems. 2. Ability to maintain main engines, auxiliary equipment and control systems.
2. perform the daily maintenance work on machinery including pumps, piping systems, bilge- and ballast systems;	<ol style="list-style-type: none"> 1. Knowledge of daily maintenance procedures. 2. Ability to maintain and to take care of pumps, piping systems, bilge- and ballast systems.
3. use required tools to ensure general technical safety;	<ol style="list-style-type: none"> 1. Knowledge of use of maintenance material and repair equipment on board, including their qualities and limitations. 2. Ability to choose and use maintenance material and repair equipment on board.
4. follow procedures of maintenance and repair;	<ol style="list-style-type: none"> 1. Knowledge of manuals and instructions for maintenance and repair. 2. Ability to conduct maintenance and repair procedures according to applicable manuals and instructions.
5. use technical information and document technical procedures.	<ol style="list-style-type: none"> 1. Knowledge of technical documentation and manuals. 2. Ability to document maintenance work.

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5. Maintenance and repair

- 5.1. The boatman shall be able to assist the management of the craft in maintaining and repairing craft, its devices and its equipment.

The boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. work with different types of materials and tools used for maintenance and repair operations;</p>	<p>1. Knowledge of the required tools and maintenance of equipment and of safe working and environmental protection rules.</p> <p>2. Ability to use relevant methods for craft maintenance including ability to choose different materials.</p> <p>3. Ability to correctly maintain and store tools and maintenance equipment.</p> <p>4. Ability to conduct maintenance work according to safe working and environmental protection rules.</p>
<p>2. protect health and environment when performing maintenance and repair;</p>	<p>1. Knowledge of applicable cleansing and preserving procedures and rules of hygiene.</p> <p>2. Ability to clean all accommodation spaces, the wheelhouse and keep the household in a proper way complying to rules of hygiene, including taking responsibility for their own accommodation space.</p> <p>3. Ability to clean the engine rooms and engines using the required cleaning materials.</p> <p>4. Ability to clean and to preserve the outer parts, the hull and the decks of the craft in the correct order using the required materials according to environmental protection rules.</p> <p>5. Ability to take care of the craft and household waste disposal according to environmental protection rules.</p>
<p>3. maintain technical devices according to technical instructions;</p>	<p>1. Knowledge of technical instructions for maintenance and maintenance programmes.</p> <p>2. Ability to take care of all technical equipment according to instructions and to use maintenance programmes (including digital) under supervision.</p>

<p>4. safely handle wires and ropes;</p>	<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 practices and rules.
<p>5. make knots and splices according to their use and maintain them;</p>	<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. Maintain wires and ropes.
<p>6. prepare and carry out working plans as a member of a team and check the results.</p>	<ol style="list-style-type: none"> 1. Knowledge of principles of team work. 2. Ability to carry out maintenance and simple repairs independently as part of the team. 3. Ability to carry out more complex repairs under supervision. 4. Apply various working methods including team work according to safety instructions. 5. Ability to evaluate the quality of work.

6. Communication

6.1. The boatman shall be able to communicate generally and professionally, which includes the ability to use standardised communication phrases in situations with communication problems.

The boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. use information and communication systems;</p>	<ol style="list-style-type: none"> 1. Knowledge of intercom installation for intra-craft or terminal communication, of the craft's (mobile) phone, radio, (satellite) TV and camera system. 2. Ability to use the craft's (mobile) phone system, the craft's radio, (satellite) TV and camera system. 3. Knowledge of operation principles of the Inland AIS system. 4. Ability to use Inland AIS data to address other craft.
<p>2. solve different tasks with the help of different types of digital devices, information services (such as River</p>	<ol style="list-style-type: none"> 1. Knowledge of digital devices available in inland waterway transport.

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	Information Services (RIS)) and communication systems;	2. Ability to use the craft's digital devices according to instructions to perform simple tasks.
3.	collect and store data including backup and data update;	1. Knowledge of the craft's communication system for data collection, storage and update. 2. Ability to process data under strict supervision.
4.	follow instructions for data protection;	1. Knowledge of data protection regulations and professional secrecy. 2. Ability to process data according to data protection regulations and professional secrecy.
5.	present facts using technical terms;	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.
6.	obtain nautical and technical information to maintain safety of navigation.	1. Knowledge of the available information sources. 2. Ability to use information sources to obtain necessary nautical and technical information to maintain safety of navigation.

6.2. The boatman shall be able to be sociable.

The boatman shall be able to:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	follow instructions and communicate with others in terms of shipboard duties;	1.	Knowledge of importance of orders given by the craft's management, formal and informal instructions, rules and procedures and of the importance of being a role model for inexperienced crew members. 2. Ability to follow up orders given by the craft's management and other instructions and rules, as well as to accompany inexperienced crew members. 3. Knowledge of company or on board rules.

		4.	Ability to comply with company or on board rules.
2.	contribute to good social relations and cooperate with others on board;	1. 2. 3. 4. 5. 6.	Knowledge of cultural diversity. Ability to accept different cultural standards, values and habits. Ability to work and live in a team. Ability to participate in team meetings and to carry out the distributed tasks. Knowledge of importance of respect for team work. 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; acknowledge dangers of alcohol and drug abuse and adequately respond to misconduct and dangers;	1. 2. 3. 4. 5. 6.	Ability to identify misconduct and potential dangers. Ability to proactively respond to misconduct and potential dangers. Ability to work independently according to instructions. Knowledge of individual workers' rights and duties. Knowledge of the dangers of the use of alcohol and drugs in the working and social environment. (Awareness of police regulation rules on toxicology). Ability to identify dangers to safe craft operation related to alcohol and drugs.
4.	plan, purchase and prepare simple meals.	1. 2.	Knowledge of possibilities of food provision and of principles of healthy nutrition. Ability to prepare simple meals in keeping with rules of hygiene.

7. Health and safety and environmental protection

7.1. The boatman shall be able to adhere to safe working rules, understand the importance of health and safety rules and the importance of the environment.

The boatman shall be able to:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	work according to instructions and rules for safety at work and prevention of accidents;	1. 2. 3.	Knowledge of the advantages of safe working practices. Knowledge of the nature of on board hazards. Ability to prevent dangers related to on board hazards, for example:

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	<ul style="list-style-type: none"> • movements of the craft; • provision for safe embarkation and disembarkation of the craft (e.g. gangplank, ship's boat); <ul style="list-style-type: none"> • safely stowing movable objects; • working with machinery; • recognising 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. <p>4. Knowledge of relevant health and safety working instructions during activities that take place on board.</p> <p>5. Knowledge of applicable regulations concerning safe and sustainable working conditions.</p> <p>6. Ability to prevent accidents in activities which might be hazardous to personnel or craft related to <ul style="list-style-type: none"> • loading and unloading cargoes; • mooring and unmooring; • working aloft; • working with chemicals; • working with batteries; • presence in engine-room; • lifting loads (manually and mechanically); • entry into and working in enclosed spaces. </p> <p>7. Ability to understand orders and to communicate with others in relation to on-board duties.</p>
<p>2. use personal protective equipment to prevent accidents;</p>	<p>1. Knowledge of personal protective equipment.</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. take required precautions before entering enclosed spaces.</p>	<ol style="list-style-type: none"> 1. Knowledge of the hazards associated with entering enclosed spaces. 2. Knowledge of precautions to be taken and tests or measurements to be carried out to determine whether or not an enclosed space has been made safe for entry, and while working in enclosed space. 3. Ability to apply safety instructions before entering certain spaces on board for example: <ul style="list-style-type: none"> • holds, • coffer dams, • double hull. 4. Ability to take precautions concerning work in enclosed spaces.

7.2. The boatman shall be able to acknowledge the importance of training aboard and act immediately in the event of emergencies.

The boatman shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. act in the case of emergencies according to applicable instructions and procedures;</p>	<ol style="list-style-type: none"> 1. Knowledge of various types of emergencies. 2. Knowledge of routine to follow in the case of an alarm. 3. Knowledge of procedures applicable in the case of an accident. 4. Ability to act according to instructions and procedures.
<p>2. perform medical first aid;</p>	<ol style="list-style-type: none"> 1. Knowledge of general principles of first aid including appreciation of body structure and functions on board a craft after assessment of a situation. 2. Ability to maintain physical and mental condition and personal hygiene in the case of first aid. 3. Knowledge of relevant measures in the case of accidents in accordance with recognised best practices.

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	<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> <ul 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 the event of burns and scalds, including accidents caused by electric current. f) rescue and transport a casualty. <p>6. Ability to improvise bandages and to use materials in emergency kit.</p>
<p>3. use and maintain personal protective equipment and shipboard life-saving equipment;</p>	<p>1. Knowledge of periodical checks of personal protection, escape routes and rescue equipment as regards function, damage, wear and other imperfections.</p> <p>2. Ability to react in the case of identified imperfections including relevant communication procedures.</p> <p>3. Ability to use personal life-saving appliances, for example:</p> <ul style="list-style-type: none"> • lifebuoys including relevant equipment, and • lifejackets including relevant equipment on lifejackets, such as fixed or flashing lights and whistle firmly secured by a cord. <p>4. Knowledge of functions of the ship's boat.</p> <p>5. Ability to prepare, launch, sail, recover and stow the ship's boat.</p>
<p>4. provide assistance in the case of rescue operations and swim;</p>	<p>1. Ability to rescue and transport a casualty.</p> <p>2. Ability to use swimming skills for rescue operations.</p>
<p>5. use emergency escape routes;</p>	<p>Ability to keep escape routes free (according to local features on board).</p>

6.	use internal emergency communication and alarm systems.	Ability to use emergency communication and alarm systems and equipment
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7.3. The boatman shall be able to take precautions to prevent fire and shall use the firefighting equipment correctly.

The boatman shall be able to:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	distinguish the elements of fire and types and sources of ignition;	1.	Knowledge of the possible causes of fire during different activities as well as knowledge of the classification of fires according to the European Standard EN or equivalent.
		2.	Knowledge of the elements of the combustion process.
		3.	Ability to apply the basics of fire-fighting.
2.	use different types of fire extinguishers;	1.	Knowledge of different characteristics and classes of fire extinguishers.
		2.	Ability to apply various methods of firefighting and use extinguishing equipment and fixed installations taking into account for example: <ul style="list-style-type: none"> • the use of different types of portable fire extinguishers, and • the influence of wind while approaching the fire.
3.	act according to shipboard fire-fighting procedures and organisation;	1.	Knowledge of on board systems to fight fire.
		2.	Ability to tackle fire and to take relevant notification measures.
4.	follow instructions concerning: personal equipment, methods, extinguishing agents and procedures during firefighting and rescue operations.	1.	Knowledge of procedures to avoid personal danger.
		2.	Ability to act according to the emergency procedure.

7.4. The boatman shall be able to perform duties taking into account the importance of protecting the environment.

The boatman shall be able to:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
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Status: This is the original version (as it was originally adopted).

<p>1. protect the environment in accordance with relevant regulations;</p>	<p>1. Knowledge of the national and international regulations concerning the protection of the environment. 2. Ability to use available documentation and information systems concerning environmental issues according to instructions. 3. Knowledge of the consequences of possible leaks, spills or release of pollutants into the environment. 4. Knowledge of dangerous goods and classifications with regards to environmental aspects.</p>
<p>2. take precautions to prevent pollution of the environment;</p>	<p>1. Knowledge of general precautions to prevent pollution of the environment. 2. Ability to follow general precautions and to apply safe bunkering procedures. 3. Ability to take measures according to instructions in the event of collision, for example by sealing of leaks.</p>
<p>3. use resources efficiently;</p>	<p>1. Knowledge of efficient use of fuel consumption. 2. Ability to use materials in an economical and energy saving way.</p>
<p>4. dispose of waste in an environmentally friendly fashion.</p>	<p>1. Knowledge of applicable regulations concerning waste. 2. Ability to carry out the collection, delivery and disposal of:</p> <ul style="list-style-type: none"> • craft oil and fat, • cargo residues, and • other types of waste goods.

II. STANDARDS OF COMPETENCE FOR THE MANAGEMENT LEVEL

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:

- completed an approved training programme based on the standards of competence for the operational level;
- 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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. demonstrate mooring, unmooring and hauling (towage) operations;</p>	<p>1. Knowledge of equipment, material and procedures used for mooring, unmooring and hauling (towage) operations.</p> <p>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.</p> <p>3. Ability to communicate with the wheelhouse using intercom communication systems and hand signals.</p> <p>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.</p> <p>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.</p>
<p>2. demonstrate coupling operations of push barge combinations;</p>	<p>1. Knowledge of equipment, material and procedures used for coupling operations.</p> <p>2. Ability to connect and disconnect push/barge combinations using the required equipment and materials.</p> <p>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.</p> <p>4. Ability to communicate with deck crew members involved in coupling operations of push barge combinations.</p>

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<p>3. demonstrate anchoring operations;</p>	<ol style="list-style-type: none"> 1. Knowledge of equipment, materials and procedures used for anchoring operations. 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. 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. 4. Ability to communicate with the wheelhouse using intercom communication systems and hand signals.
<p>4. take appropriate actions for safety of navigation;</p>	<ol style="list-style-type: none"> 1. Ability to immediately warn the craft's crew and to use personal protective and rescue equipment. 2. Ability to secure the watertightness of the craft. 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>	<ol style="list-style-type: none"> 1. Knowledge of the shape, layout and facilities of locks and bridges, lockage (locking process), types of lock gates, bollards and stairs, etc. 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>	<ol style="list-style-type: none"> 1. Knowledge of police regulations applying to the relevant inland waterways. 2. Ability to handle and maintain the craft's day and night marking system, signs and sound signals.

	3. Knowledge of buoyage and marking system according to SIGNI and IALA part A.
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0.2. Operation of the craft

The boatmaster shall be able to:

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

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
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.

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| | 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. |
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0.4. Marine engineering and electrical, electronic and control engineering

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
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.
2. prepare, start, connect and change generators and control their systems and shore supply;	1. Knowledge of the power installation. 2. Ability to use switchboard. 3. Ability to use shore supply.
3. use required tools and materials;	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;	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.	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:

	COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
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.

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<p>4. make knots and splices according to their use and maintain them.</p>	<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.
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0.6. Communication

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. present facts using technical terms.</p>	<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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. apply rules for the safety at work and prevention of accidents;</p>	<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, • recognising electric hazards, • fire precautions and firefighting, • professional use of hand tools,

	<ul style="list-style-type: none"> • professional use of portable power tools, • compliance with health and hygiene, • removal of slip, fall and tripping hazards. <p>4. Knowledge of the relevant health and safety working instructions during activities that take place on board.</p> <p>5. Knowledge of applicable regulations concerning safe and sustainable working conditions.</p> <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>

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5.	use internal emergency communication and alarm systems;	Ability to use emergency communication and alarm systems and equipment.
6.	distinguish the elements of a fire and types and sources of ignition;	<ol style="list-style-type: none"> 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. 2. Knowledge of the elements of the combustion process. 3. Ability to apply the basics of firefighting procedures.
7.	distinguish and use different types of fire extinguishers.	<ol style="list-style-type: none"> 1. Knowledge of different characteristics and classes of fire extinguishers. 2. Ability to apply various methods of firefighting and extinguishing equipment and fixed installations for example: <ul style="list-style-type: none"> • classes of fire extinguishers, • use of different types of portable extinguishers, • influence of wind while approaching the fire.
8.	Perform medical first aid	<ol style="list-style-type: none"> 1. Knowledge of general principles of first aid including appreciation of body structure and functions on board a craft after assessment of a situation. 2. Ability to maintain physical and mental condition and personal hygiene in the case of first aid. 3. Knowledge of relevant measures in the case of accidents in accordance with recognised best practices. 4. Ability to assess needs of casualties and threats to own safety. 5. Ability to perform required measures in cases of emergency, including 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 the event of burns and scalds,

	<p>including accidents caused by electric current,</p> <p>f) rescue and transport a casualty.</p> <p>6. Ability to improvise bandages and materials in emergency kit.</p>
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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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. navigate on European inland waterways including locks and lifts according to navigation agreements with agent;</p>	<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> <p>6. Ability to instruct crew members and shipboard personnel to perform tasks in a safe way.</p>
<p>2. respect and apply traffic regulations applicable to navigation on inland waterways to avoid damage;</p>	<p>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).</p>

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		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. 2.	Knowledge of the environmental aspects when sailing on inland waterways. 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;	1. 2.	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. 2. 3. 4.	Knowledge of navigation aids. Ability to use navigation aids as applicable e.g. satellite position system. 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. 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. 2.	Knowledge of signals. Ability to use day and night signs such as lights to guide craft. 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. 3. Ability to use traffic information tools.
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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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. ensure safe manning of craft in accordance with applicable rules, including knowledge on resting time and on the composition of the deck crew.</p>	<p>1. Knowledge of minimum manning requirements and mandatory professional qualifications of crew members and shipboard personnel.</p> <p>2. Knowledge of requirements of medical fitness and medical checks of crew members.</p> <p>3. Knowledge of administrative procedure to record data in service record books.</p> <p>4. Knowledge of applicable modes of exploitation and minimum resting time.</p> <p>5. Knowledge of administrative procedure to record data in the logbook.</p> <p>6. Knowledge of working time rules.</p> <p>7. Knowledge of specific authorisation requirements.</p> <p>8. Knowledge of specific manning requirements with respect to vessels covered by ADN, passenger vessels and for LNG craft where applicable.</p> <p>9. Ability to instruct crew members when to take up and to end duty.</p>

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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. navigate and manoeuvre taking into account geographical, hydrological,</p>	<p>1. Knowledge of the hydrological and morphological characteristics of the main waterways, e.g. catchment</p>

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<p>meteorological and morphological characteristics of the main inland waterways;</p>	<p>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.</p> <p>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.</p> <p>3. Ability to apply geographical, hydrological, meteorological and morphological information.</p>
<p>2. give order to moor and unmoor craft and to haul towage operations;</p>	<p>1. Knowledge of technical requirements and documents on mooring and hauling operations.</p> <p>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.</p> <p>3. Ability to communicate with deck personnel, e.g., to use communication systems and hand signals.</p>
<p>3. provide safe access to craft;</p>	<p>1. Knowledge of technical requirements on facilities to access craft.</p> <p>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.</p>
<p>4. use modern electronic navigation aids;</p>	<p>1. Knowledge of functions and operation of navigation aids.</p> <p>2. Knowledge of operating principles, limitations and sources of error of navigation aids.</p> <p>3. Ability to use nautical sensors and indicators providing navigation information, e.g. (D) GPS, position, heading, course, speed, distance, depth, Inland ECDIS, radar.</p> <p>4. Ability to use River Information Services (RIS) and technologies,</p>

	<p>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.</p> <p>5. Ability to detect misrepresentation of information and apply methods of correction.</p>
<p>5. respect technical requirements for inland navigation;</p>	<p>1. Knowledge of structure and content of the applicable technical requirements and of the content of the craft certificate.</p> <p>2. Ability to initiate checks and certification procedures.</p>
<p>6. 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);</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>4. Ability to respect interaction effects when sailing, manoeuvring and when stationary in a narrow fairway</p>

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		<p>and to recognise the interaction effects relating to empty or loaded craft.</p> <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>
7.	use of propulsion and manoeuvring systems as well as appropriate communication and alarm systems;	<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.	<p>1. Basic knowledge of structure of ADN, ADN documents and instructions and visual signals required by ADN.</p> <p>2. Ability to find instructions in ADN and to identify visual signs for craft subject to ADN.</p>

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

The boatmaster shall be able to:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	take precautions in an emergency when intentionally beaching a craft in order to prevent greater damage;	1.	Knowledge of shallow places and banks of sandy character that can be used to beach the craft.
		2.	Ability to adequately use machines or anchoring devices if beaching becomes necessary.
2.	refloat a grounded craft with and without assistance;	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.
		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>	<p>1. Knowledge of rules applicable if collision or accident is imminent. 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>
<p>4. take appropriate actions after a collision and assessment of damage.</p>	<p>1. Knowledge of rules applicable after a collision or accident. 2. Ability to take the appropriate measures in the event of damage, collision and running aground, including assessment of the damage, communication with the competent authority and obtaining permission to sail to a position of recovery.</p>

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⁽²⁾.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. respect the principles of inland waterway shipbuilding and construction;</p>	<p>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.</p>
<p>2. distinguish construction methods of craft and their behaviour in the water, especially in terms of stability and strength;</p>	<p>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.</p>

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		3. Ability to supervise the craft's stability and to give instructions accordingly.
3.	understand structural parts of craft and damage control and analysis;	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Knowledge of the craft's watertightness. 2. Ability to supervise the craft's watertight integrity and give instructions accordingly.

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:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	understand functionalities of craft equipment;	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
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. 5. Knowledge of the possible detrimental effects of inadequate cargo handling.

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	6.	Ability to use the technical means for handling cargoes in or from craft and ports, and labour safety measures during their use.
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.	1. 2.	1. Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant safe working regulations. 2. Knowledge of effective communication and working relationships with all partners involved in loading and unloading procedures.

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

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. respect the effect on trim and stability of cargoes and cargo operations;	1. Knowledge of watertight integrity and stability for all types of cargo and craft. 2. Ability to use instruments to correct trim and stability.
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.	1. Knowledge of dedicated software to calculate stability, trim and stress. 2. Ability to determine stability, trim and to use stress tables, diagrams and stress-calculating equipment.

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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. understand relevant national, European and international regulations, codes and standards concerning the transportation of passengers;	1. Knowledge of the applicable regulations and conventions regarding passenger transport. 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

		<p>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>
2.	<p>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;</p>	<p>1. Knowledge of responsibilities under international and national regulations affecting the safety of the vessel, passengers and crew.</p> <p>2. Ability to implement shipboard personnel management and training with respect to safety.</p> <p>3. Apply medical first aid on board vessel.</p>
3.	<p>respect impacts on stability of the passenger vessel in relation to weight distribution of passengers, behaviour and communication with passengers;</p>	<p>1. Knowledge of rules and regulations with regards to stability.</p> <p>2. Ability to apply relevant measures regarding the watertight integrity, including influence on trim and stability of passenger vessels.</p> <p>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.</p> <p>4. Ability to use standardised communication phrases.</p>
4.	<p>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;</p>	<p>1. Knowledge of and compliance with the limitation of the number of passengers according to the passenger vessel certificate.</p> <p>2. Knowledge of safety and security systems preventing unauthorised access.</p> <p>3. Ability to organise watchkeeping (i.e. night watch) systems with respect to safety and security.</p>
5.	<p>analyse reports given by passengers (i.e. unforeseen occurrences, defamation, vandalism) in order to react appropriately.</p>	<p>1. Knowledge of passenger rights and complaints from passengers, and of risks connected to passenger transport for the environment.</p> <p>2. Ability to prevent environmental pollution by passengers and crew.</p> <p>3. Ability to handle complaints and conflict management.</p>

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| | 4. Ability to communicate with shipboard personnel and all interacting parties. |
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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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. use the functionality of the main engines and auxiliary equipment and their control systems;	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.
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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
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;	<ol style="list-style-type: none"> 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.	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:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	monitor routine pump works, ballast and loading pump systems.	<ol style="list-style-type: none"> 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:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	prevent potential damage to electric and electronic devices on board;	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Knowledge of the craft's electro-technical testing devices. 	

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	maintain electric or electronic control equipment;	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:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
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:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
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<p>1. ensure safe behaviour of crew members with regard to the use of materials and additives;</p>	<p>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.</p>
<p>2. define, monitor and ensure work orders so that crew members are able to perform maintenance and repair work independently;</p>	<p>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 during Navigation on the Rhine and 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.</p>
<p>3. purchase and control material and tools with regard to health and environmental protection;</p>	<p>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.</p>
<p>4. ensure wires and ropes are being used according to the manufacturer's specifications and intended purpose.</p>	<p>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.</p>

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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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
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 coordination, personnel assignment, time and resource constraints, prioritisation. 6. Ability to recognise 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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
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.

<p>2. retrieve, evaluate and use information with relevance to safety on board as well as nautical-technical issues.</p>	<p>1. Knowledge of procedures to follow in all distress, emergency and safety communication. 2. Ability to use the standard communication phrases.</p>
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6.3 The boatmaster shall be able to foster a well-balanced and sociable working environment on board.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. ensure a good social working environment;</p>	<p>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.</p>
<p>2. apply national, European and international social legislation;</p>	<p>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.</p>
<p>3. follow strict alcohol and drug prohibition and react appropriately in cases of infringement, take responsibility and explain consequences of misbehaviour;</p>	<p>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.</p>
<p>4. organise provisioning and preparation of meals on board.</p>	<p>1. Knowledge of principles of healthy nutrition. 2. Ability to instruct crew members in planning and preparing meals.</p>

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	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:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. apply national and international legislation and take appropriate measures for health protection and the prevention of accidents;	1. 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.
2. control and monitor validity of the craft's certificate and other documents relevant to the craft and its operation;	1. Knowledge of legislation on periodic checks of equipment and construction parts. 2. Ability to check the validity of certificates and other documents relevant to the craft and its operation.
3. comply with safety regulations during all working procedures by using relevant safety measures in order to avoid accidents;	1. Knowledge of safe working practices and safe working procedures. 2. Ability to organise safe working procedures, to motivate and monitor crew members to apply safe working rules.
4. control and monitor all safety measures necessary for cleaning enclosed spaces before persons open, enter and clean those facilities.	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. 2. Ability to conduct a risk assessment before entering 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,

	<ul style="list-style-type: none"> • control of entry into enclosed spaces, • safeguards for enclosed space entry, • protective equipment (e.g. harnesses and respiratory equipment), • work in enclosed spaces.
4.	Ability to take appropriate actions in the event of an emergency

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:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. use life-saving appliances and apply life-saving procedures for victims and own personal safety;	<ol style="list-style-type: none"> 1. Knowledge of available life-saving equipment. 2. Ability to use life-saving appliances and to apply life-saving procedures for victims and own personal safety.
2. organise crisis management training exercises for behaviour in emergency situations, e.g. fire, leakage warning, explosion, collision, ‘person over board’ and evacuation;	<ol style="list-style-type: none"> 1. Knowledge of emergency procedures. 2. Ability to instruct crew members on emergency procedures. 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.
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

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		working rules and to maintain personal protection and personal safety equipment.
4.	perform first aid;	1. Ability to act in compliance of first aid standards and practices.
5.	establish an effective on-board system to control life-saving appliances and correct application of personal protection equipment.	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, fire-fighting 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.	1. Knowledge of training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010. 2. Ability to perform and organise 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;	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;	1. Knowledge of 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 vessel stability, and ability to take appropriate measures. 3. Ability to communicate and coordinate during fire-fighting operations including

		communication with external organisations and to actively take part in rescue and fire-fighting operations.
3.	train on the use of life-saving appliances;	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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:

COLUMN 1	COMPETENCE	COLUMN 2	KNOWLEDGE AND SKILLS
1.	take precautions to prevent environmental pollution and use relevant equipment;	<ol style="list-style-type: none"> 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;	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Knowledge of procedures to make sustainable use of resources. 2. Ability to instruct crew in using equipment and materials in an 	

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		economical and environmentally friendly way.
4.	instruct and monitor sustainable waste disposal.	<ol style="list-style-type: none"> 1. Knowledge of legislation on waste disposal. 2. Ability to ensure sustainable waste disposal and to instruct crew members and board personnel accordingly.

III. STANDARDS OF COMPETENCE FOR SAILING ON INLAND WATERWAYS WITH A MARITIME CHARACTER

1. The boatmaster sailing on inland waterways with a maritime character shall be able to work with up-to-date charts and maps, notices to skippers and mariners and other publications specific to waterways with a maritime character.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. use information supplied from specific nautical information sources and rules applicable for inland waterways with a maritime character.	<ol style="list-style-type: none"> 1. Knowledge of use of nautical charts and maps of inland waterways with maritime character. 2. Ability to use and correctly apply charts and maps of inland waterways with maritime character for considering factors relating to accuracy of chart reading such as chart date, symbols, soundings, bottom description, depths and datums and international charts standards such as ECDIS. 3. Knowledge of terrestrial and satellite navigation for determination of dead reckoning, piloting, coordinates, geodetic latitude and longitude, horizontal geodetic datum, difference of latitude and longitude, distance and speed over ground, directions on the earth, course, course over ground, compass course corrected with the drift as the result of wind direction and force, heading and bearing, determination of the course, determination of the course with wind and current effect, determination of the course with effect of current and plotting position sailing on route and bearings. 4. Ability to use notices to skippers and mariners and other information

	<p>services such as sailing directions, planning guides, light lists, maritime safety information (MSI).</p> <p>5. Knowledge of traffic regulations applying on inland waterways with maritime character including relevant parts of the International Regulations for Preventing Collisions at Sea.</p> <p>6. Knowledge of rules applying in emergency situations on inland waterways with a maritime character.</p> <p>7. Ability to use maritime equipment foreseen by specific regulation.</p>
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2. The boatmaster sailing on inland waterways with a maritime character shall be able to use tidal datums, tidal currents, periods and cycles, the time of tidal currents and tides and variations across an estuary.

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. respect tides, tidal, weather forecast and conditions before casting-off and when sailing.</p>	<p>1. Knowledge of publications and information for predicting tides and currents, such as, tide tables, tide prediction for subordinate stations, information on ice, high/low water levels, berths and port directories for determination of water level, current direction and force and available depth.</p> <p>2. Knowledge of effects of weather conditions, the shape of land and other factors on tidal currents.</p> <p>3. Ability to determine the impact of tidal level, current, weather conditions and waves, on the planned voyage for safe navigation.</p>

3. The boatmaster sailing on inland waterways with a maritime character shall be able to use SIGNI (Signalisation de voies de Navigation Intérieure) and IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) for safe navigation on inland waterways with a maritime character.

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. use SIGNI (Signalisation de voies de Navigation Intérieure), IALA</p>	<p>1. Knowledge of buoyage, IALA, region A, marking and signal systems such as buoyage direction,</p>

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(International Association of Marine Aids to Navigation and Lighthouse Authorities) or other local marking and signal systems.

numbering, marking of objects and superstructures, lateral and cardinal markings, bifurcations buoys, supplementary marks, marking of danger points and obstacles, marking the course of the fair way as well as channel, entrances of harbours, buoyage and illumination and characteristics of illumination.

2. Ability to use the marking and signal systems to determine the appropriate crafts position in the waterway with respect to local circumstances and conditions.

IV. STANDARDS OF COMPETENCE FOR SAILING WITH THE AID OF RADAR

1. The boatmaster sailing with the aid of radar shall be able to take appropriate action in relation to navigation with the aid of radar before casting off.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. prepare the start of a journey and use of navigational radar installations and rate-of-turn indicators for navigation especially in reduced visibility conditions.</p>	<p>1. General knowledge of radio waves and knowledge of the principles of radar operation and more specifically</p> <ul style="list-style-type: none"> • the propagation velocity of radio waves, • reflection of radio waves • key parameters of navigational radar installations (operating frequency range, transmission power, pulse duration, rate of antenna revolutions, characteristics of the antenna, display dimensions and range scales, minimum range, radial resolution and azimuthal resolution etc.). <p>2. General knowledge of the working principle of rate-of-turn indicators and their application.</p> <p>3. Ability to switch on, adjust and control navigational radar installations such as Tune, Gain, Brilliance, On/Standby, Range and to use rate-of-turn indicators in</p>

inland navigation and assure correct use.

2. The boatmaster sailing with the aid of radar shall be able to interpret radar display and analyse the information supplied by radar.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. interpret the radar display correctly with respect to own and other craft positions;	1. Ability to interpret the radar display by correctly identifying the <ul style="list-style-type: none"> • position of the antenna on the screen and heading line, • setting of position, course and turning direction of the own craft, • determining distances and reach. 2. Ability to interpret the behaviour of other traffic participants (stationary craft, oncoming craft and craft heading in the same direction).
2. analyse other information supplied by radar.	1. Ability to analyse the information supplied by radar such as heading line (HL), electronic bearing line (EBL), range rings and variable range marker (VRM), target trails, decentring, parallel lines (P-Lines) and to explain the radar picture. 2. Knowledge of the limitation of information supplied by navigational radar installations. 3. Ability to interpret stationary and moving objects displayed on the radar.

3. The boatmaster sailing with the aid of radar shall be able to reduce interference of varying origin.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. identify and reduce disturbances coming from the own craft;	1. Knowledge of disturbances which might be caused by break-up or split of the antenna beam, by shadowing effects (blind sectors) or by multiple reflections (e.g. in the area of the loading compartments).

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	2.	Ability to take action to reduce disturbances coming from own craft.
2. identify and reduce disturbances coming from the environment;	1.	Knowledge of disturbances from rain or waves, scattered fields (e.g. bridges), multiple reflections, false/ghost echoes, power transmission lines, radar shadowing and multipath propagation effects.
	2.	Ability to take action to reduce disturbances coming from the environment (by using Anti-Rain Clutter (FTC) and Anti-Sea Clutter (STC)).
3. identify and reduce disturbances coming from other radar navigation installations.	1.	Knowledge of appearance of disturbances caused by other navigational radar installations.
	2.	Ability to take action to remove disturbances coming from other navigational radar installations (interference rejection/IR).

4. The boatmaster sailing with the aid of radar shall be able to navigate by radar taking into account the agreed set of rules applicable to inland navigation and in accordance with the regulations specifying the requirements for navigating by radar (such as manning requirements or technical requirements for vessels).

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. apply rules governing the use of radar.	1. Knowledge of specific rules for radar use in the agreed set of rules applicable in inland navigation and in applicable police regulation (e.g. sailing in situations with reduced visibility, use of radar when visibility is not reduced and mandatory radar use when sailing), use of VHF, sound signals and agreements on course to steer.
	2. Knowledge of technical requirements of craft using navigational radar installation according to the applicable technical requirements such as ES-TRIN (European Standard laying down Technical Requirements for Inland Navigation vessels).
	3. Ability to use correctly navigational radar installation, rate-of-turn

	<p>indicators and Inland ECDIS combined with radar.</p> <p>4. Knowledge of the crewing requirements in situations with reduced visibility and good visibility.</p> <p>5. Ability to adequately attribute tasks to crew members and give appropriate instructions.</p>
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5. The boatmaster sailing with the aid of radar shall be able to handle specific circumstances, such as density of traffic, failure of devices, dangerous situations.

The boatmaster shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. react appropriately in exceptional circumstances such as high traffic density, failure of devices and other unclear or dangerous traffic situations.</p>	<p>1. Knowledge of possibilities to react in high traffic density.</p> <p>2. Ability to take appropriate measures in high traffic density.</p> <p>3. Knowledge of mitigation measures and adequate reaction patterns in case of failure of devices.</p> <p>4. Ability to react in case of failure of devices.</p> <p>5. Knowledge of possible actions to be taken in case of any unclear or dangerous traffic situations.</p> <p>6. Ability to react in case of any unclear or dangerous traffic situation.</p>

V. STANDARDS OF COMPETENCE FOR PASSENGER NAVIGATION EXPERTS

1. The expert shall be able to organise the use of life-saving equipment on board passenger vessels.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. organise the use of life-saving equipment.</p>	<p>1. Knowledge of safety control plans including:</p> <ul style="list-style-type: none"> • safety rota and safety plan, • emergency plans and procedures. <p>2. Knowledge of life-saving equipment and its functions and ability to demonstrate the use of life-saving equipment.</p>

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	<ol style="list-style-type: none"> 3. Knowledge of areas accessible to passengers with reduced mobility. 4. Ability to demonstrate the use of life-saving equipment for passengers including passengers with reduced mobility.
2.	The expert shall be able to apply safety instructions and take the necessary measures to protect passengers in general, especially in the event of emergencies (e.g. evacuation, damage, collision, running aground, fire, explosion or other situations which may give rise to panic) including providing direct assistance to disabled persons and persons with reduced mobility in accordance with training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. apply safety instructions;	<ol style="list-style-type: none"> 1. Ability to monitor the safety systems and equipment and to organise checks and control of the passenger vessel safety equipment including breathing apparatus. 2. Ability to conduct exercises on emergency situations. 3. Ability to instruct crew members and shipboard personnel having a role according to the safety rota on the use of life-saving equipment, escape routes, muster areas and evacuation areas in the case of an emergency. 4. Ability to provide information to passengers at the beginning of the voyage on the code of conduct and contents of the safety plan.
2. take necessary measures to protect passengers in general and in emergency situations;	<ol style="list-style-type: none"> 1. Ability to implement safety rota planning for evacuation of parts of the vessel or of the entire vessel, taking into account different emergency situation (e.g. smoke, fire, leakage, danger to vessel stability and dangers arising from cargo transported on board). 2. Knowledge of the principles of crisis and crowd management and conflict management. 3. Ability to provide necessary information to boatmaster, passengers and external rescue forces.

<p>3. provide assistance and give instructions so that disabled persons and passengers with reduced mobility can embark, stay on board and disembark safely.</p>	<p>1. Knowledge of accessibility of the vessel, areas on board suited for disabled persons and persons with reduced mobility including their specific needs with regard to e.g. escape routes and correct designation of such areas in safety plans.</p> <p>2. Ability to implement rules on non-discriminatory access and safety rota planning for disabled persons and persons with reduced mobility and all training requirements referred to in Annex IV to Regulation (EU) No 1177/2010.</p>
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3. The expert shall be able to communicate in elementary English.

The expert shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. communicate safety related issues in elementary English.</p>	<p>1. Knowledge of elementary English vocabulary and pronunciation of wording suited to guide all persons on board in standard situations and to alert and guide them in the event of emergencies;</p> <p>2. Ability to use elementary English vocabulary and pronunciation of wording suited to guide all persons on board in standard situations and to alert and guide them in the event of emergencies.</p>

4. The expert shall be able to meet the relevant requirements of Regulation (EU) No 1177/2010

The expert shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. provide assistance to passengers concerning passenger rights.</p>	<p>1. Knowledge of rules for inland waterway transport established by Regulation (EU) No 1177/2010, in particular as regards the non-discrimination between passengers with regard to transport conditions offered by carriers, the rights of passengers in cases of cancellation or delay, the minimum information to be provided to passengers, the</p>

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	<ol style="list-style-type: none"> 2. Ability to inform passengers on the applicable passenger rights. 3. Ability to implement applicable procedures to provide access and professional assistance.
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VI. STANDARDS OF COMPETENCE FOR LIQUEFIED NATURAL GAS (LNG) EXPERTS

1. The expert shall be able to ensure compliance with legislation and standards applicable to craft that use LNG as fuel, as well as with other relevant health and safety regulations.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<ol style="list-style-type: none"> 1. ensure compliance with relevant legislation and standards applicable to craft using LNG as fuel; 	<ol style="list-style-type: none"> 1. Knowledge of regulations relating to craft using LNG as a fuel such as relevant police regulations, relevant regulations on technical requirements and ADN. 2. Knowledge of classification society rules. 3. Ability to instruct and monitor crew member operations in order to ensure compliance with legislation and standards applicable to craft using LNG as a fuel on board the craft and in particular with the bunkering procedure.
<ol style="list-style-type: none"> 2. ensure compliance with other relevant health and safety regulations when sailing and moored. 	<ol style="list-style-type: none"> 1. Knowledge of relevant health and safety regulations including relevant local requirements and authorisations in particular in port areas. 2. Ability to instruct and monitor crew member operations in order to ensure compliance with other relevant health and safety regulations.

2. The expert shall be able to be aware of specific points of attention related to LNG, recognise the risks and manage them.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
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<p>1. recognise specific points of attention related to the specific characteristics of LNG;</p>	<p>1. Knowledge of definition, composition and quality attributes of LNG, Safety Data Sheet (SDS): physical properties and characteristics of the product and environmental characteristics.</p> <p>2. Knowledge of the adequate storage temperature, flashpoint, explosion limits and pressure characteristics, critical temperatures, related hazards, atmospheric conditions, cryogenic properties, the behaviour of LNG in air, boil-off and inert gas e.g. nitrogen.</p>
<p>2. recognise risks and manage them.</p>	<p>1. Knowledge of safety plans, hazards and risk, including knowledge of muster list and its related safety tasks.</p> <p>2. Ability to conduct risks management, to document on-board safety (including safety plan and safety instructions), to assess and control dangerous areas, fire safety and to use personal protective equipment.</p>

3. The expert shall be able to operate the systems specific to LNG in a safe way.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
<p>1. operate the systems specific to LNG on-board and connected to on-board systems in a safe way.</p>	<p>1. Knowledge of technical aspects of the LNG system such as</p> <ul style="list-style-type: none"> • general configuration and operating manual, • LNG bunkering system, • spill control equipment, • LNG containment system, • gas preparation system, • LNG pipe system, • gas supply system, • engine room concept, • ventilation system, • temperature and pressure (how to read a pressure and temperature distribution chart), • valves (in particular, the main gas fuel valve), • pressure relief valves,

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	<ul style="list-style-type: none"> • control, surveillance and safety systems, alarms, gas detection and dry breakaway couplings.
2.	Ability to present the mode of action of LNG, read pressure and temperature, operate stripping, containment, gas supply, ventilation, pipe and safety systems, valves and to manage boil-off of LNG.

4. The expert shall be able to ensure regular checking of the LNG system.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. perform and monitor regular checks of the LNG system.	<ol style="list-style-type: none"> 1. Knowledge of maintenance and monitoring of the LNG system. 2. Knowledge of possible malfunction and alarms. 3. Ability to perform daily maintenance, weekly maintenance, regular periodic maintenance, to correct malfunctions and to document maintenance work.

5. The expert shall be able to know how to perform LNG bunkering operations in a safe and controlled manner.

The expert shall be able to:

COLUMN 1 COMPETENCE	COLUMN 2 KNOWLEDGE AND SKILLS
1. perform and monitor bunkering procedures in a safe way.	<ol style="list-style-type: none"> 1. Knowledge of <ul style="list-style-type: none"> • identification marking in line with relevant police and port regulation, • conditions for berthing and moorage for bunkering purposes, • LNG bunkering procedure, • purging of the LNG system, • relevant checklists and delivery certificate, • bunkering safety measures and evacuation procedures. 2. Ability to start and monitor bunkering procedures including

	<p>measures to guarantee safe mooring, correct position of cables and pipes in order to avoid leakage and to take measures to safely disconnect LNG and bunkering connection if needed at any time.</p> <p>3. Ability to ensure compliance with relevant safety zone regulations.</p> <p>4. Ability to report start of bunkering procedure and to perform safe bunkering according to manual including ability to monitor pressure, temperature and LNG level in tanks.</p> <p>5. Ability to purge pipe systems, to close valves and disconnect craft from bunkering installation and to report end of procedure after bunkering.</p>
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6. The expert shall be able to prepare the LNG system for craft maintenance.

The expert shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. prepare the LNG system for craft maintenance and for renewed use.</p>	<p>1. Knowledge of correct purging procedures such as use of drainage of gas and flushing of LNG system prior to shipyard stay.</p> <p>2. Ability to perform</p> <ul style="list-style-type: none"> • inerting of the LNG system, • LNG fuel tank drainage procedure, • first filling of LNG fuel tank (drying and cooldown) • entry into service following a shipyard stay.

7. The expert shall be able to handle emergency situations related to LNG.

The expert shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
<p>1. react appropriately in emergency situations (such as LNG spills and leaks, skin contact with low temperature substance, fire, incidents related to transport of</p>	<p>1. Knowledge of emergency measures and on-board safety documentation (including the safety plan and safety instructions).</p> <p>2. Ability to react appropriately in case of emergencies such as</p>

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dangerous goods with specific hazards or craft running aground).

- on-deck LNG spills,
- skin contact with LNG,
- LNG spills in closed spaces (e.g. in engine rooms),
- LNG spills or natural gas leaks in inter-barrier spaces (e.g. double-walled fuel tanks, double-walled pipes),
- fire in the vicinity of LNG fuel tanks or in the engine rooms
- pressure built up in pipe systems after Emergency Shut Down activation in case of imminent release or venting.

3. Knowledge of specific hazards related to the transport of dangerous goods and craft running aground or colliding.

4. Ability to take emergency measures and remote surveillance emergency measures e.g. to properly control LNG fire, pool, jet and flash fire.

- (1) Regulation (EU) No 1177/2010 of the European Parliament and of the Council of 24 November 2010 concerning the rights of passengers when travelling by sea and inland waterway and amending Regulation (EC) No 2006/2004 (OJ L 334, 17.12.2010, p. 1).
- (2) 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).