Commission Delegated Directive (EU) 2020/12 of 2 August 2019 supplementing Directive (EU) 2017/2397 of the European Parliament and of the Council as regards the standards for competences and corresponding knowledge and skills, for the practical examinations, for the approval of simulators and for medical fitness (Text with EEA relevance)

COMMISSION DELEGATED DIRECTIVE (EU) 2020/12

of 2 August 2019

supplementing Directive (EU) 2017/2397 of the European Parliament and of the Council as regards the standards for competences and corresponding knowledge and skills, for the practical examinations, for the approval of simulators and for medical fitness

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation, and repealing Council Directives 91/672/EEC and 96/50/EC[(1)], and in particular Article 17(1) and (4), Article 21(2) and Article 23(6) thereof,

Whereas:

(1) Directive (EU) 2017/2397 sets out the conditions and procedures for the certification of the qualification of persons involved in the operation of a craft on the Union inland waterways. The certification is aimed at facilitating mobility, ensuring the safety of navigation and ensuring the protection of human life and the environment.

(2) In order to provide minimum harmonised standards for the certification of qualifications, the Commission has been empowered to adopt detailed rules laying down standards for competences and corresponding knowledge and skills, standards for practical exminations, standards for the approval of simulators and standards for medical fitness.

(3) Pursuant to Article 32 of Directive (EU) 2017/2397, delegated acts should make reference to standards established by the European Committee for drawing up standards in the field of inland navigation (‘CESNI’) and include the entire text of those, provided that those standards are available and up-to-date, that those standards comply with any applicable requirements set out in the Annexes of the Directive and that Union interests are not compromised by changes in the decision-making process of CESNI. The three conditions were fulfilled with the adoption, by CESNI, during its meeting on 8 November 2018, of the first standards on professional qualifications in inland navigation.

(4) The standards for competences should lay down the minimum competences required for the safe operation of the craft, and this, for the crew members at operational and management levels, for the boatmasters authorised to sail with the aid of radar and those authorised to sail on waterways with a maritime character, for the passenger navigation experts and for the liquefied natural gas (LNG) experts. Each required competence should be defined with its corresponding required knowledge and skills.

(5) In order for the competent authorities to carry out in a similar way the practical examinations required by Article 17(3) of Directive (EU) 2017/2397, standards for the practical examinations should be laid down. To this end, the standards should define, for each practical examination, the specific competences and the assessment situations, including a specific scoring system and technical requirements for craft and onshore installations. For the candidates to the qualification of boatmaster who have not previously completed an assessment at operational level, an additional module should be provided for, so that the ability to perform the related supervised tasks can also be verified.

(6) The standards for the approval of simulators should be laid down to ensure that the simulators used for an assessment of competence are designed in such a way as to allow for the verification of the competences as prescribed under the standards for practical examinations. The standards should cover the technical and functional requirements for vessel-handling and radar simulators as well as the procedure for the administrative approval of those simulators.

(7) In order to reduce national differences in medical requirements and examination procedures and to ensure that medical certificates which are issued to deck crew members in inland navigation are a valid indicator of their medical fitness for the work they will perform, standards for medical fitness should be laid down. The standards should specify the tests that medical practionners are to carry out and the criteria they are to apply to determine the fitness for work of deck crew members. They should cover eyesight, hearing and physical and psychological conditions which may lead to temporary or permanent unfitness for work, as well as possible mitigation measures and restrictions. For coherence, the standards should be based on the guidelines on the medical examinations of seafarers published by the International Labour Organisation and the International Maritime Organisation, in particular on the criteria applied to coastal services.

(8) The date of transposition of this delegated Directive should be aligned with the dates of transposition of Directive (EU) 2017/2397 for reasons of coherence and efficiency.

(9) In accordance with the case law of the Court of Justice of the European Union, the information which Member States are obliged to supply to the Commission in the context of transposing a directive must be clear and precise. This is also the case for this delegated act,

HAS ADOPTED THIS DIRECTIVE:

Article 1

The standards for competences and corresponding knowledge and skills referred to in Article 17(1) of Directive (EU) 2017/2397 shall be those laid down in Annex I to this Directive.

Article 2

The standards for the practical examinations referred to in Article 17(3) of Directive (EU) 2017/2397 shall be those laid down in Annex II to this Directive.

Article 3

The standards for the approval of simulators referred to in Article 21(2) of Directive (EU) 2017/2397 shall be those laid down in Annex III to this Directive.

Article 4

The standards for the medical fitness referred to in Article 23(6) of Directive (EU) 2017/2397 shall be those laid down in Annex IV to this Directive.

Article 5

1 Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 17 January 2022 at the latest. They shall forthwith communicate to the Commission the text of those provisions.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2 Paragraph 1 shall not apply to a Member State that has not fully transposed and implemented Directive (EU) 2017/2397 in accordance with Article 39(2), (3) or (4) of that Directive. Where such Member State fully transposes and implements Directive (EU) 2017/2397, it shall at the same time bring into force the laws, regulations and administrative provisions necessary to comply with this Directive and inform the Commission that it has done so.

3 Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 6

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Article 7

This Directive is addressed to the Member States.

Done at Brussels, 2 August 2019.

For the Commission

The President

Jean-Claude JUNCKER

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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. assist with mooring, unmooring and hauling (towage) operations;	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;	1. Knowledge of equipment, material and procedures used for coupling operations.

		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;	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;	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;	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;	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.

		3.	Ability to use navigation instruments such as compass, rate of turn indicator and sailing speed indicator.
7.	undertake necessary actions for safety of navigation;	1. 2. 3. 4. 5. 6. 7.	Knowledge of safety regulations and checklists to follow in dangerous and emergency situations. Ability to recognise and respond to unsafe situations and follow-up actions according to the safety regulations. Ability to immediately warn the craft's management. Ability to use personal protective and rescue equipment. Knowledge of verification commissioned by the supervisor regarding the presence, usefulness, watertightness and securing of the craft and its equipment. Ability to execute the work according to the checklist on deck and living quarters such as waterproofing and securing of the hatches and holds. 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.
8.	describe the characteristics of main European inland waterways, ports and terminals for voyage preparation and steering;	1. 2. 3. 4. 5.	Knowledge of the most important national and international inland waterways. Knowledge of the main ports and terminals located in the European inland waterway transport (IWT) network. Knowledge of the influence of engineering structures, waterway profiles and protection works on navigation. 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. Knowledge of navigational aids and instruments needed when

			navigating on inland waterways with maritime character.
		6.	Ability to explain the characteristics of various types of inland waterways for voyage preparation and steering.
9.	respect the general provisions, signals, signs and marking system;	1.	Knowledge of agreed set of rules applicable in inland navigation and 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 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.
10.	follow procedures while passing locks and bridges;	1.	Knowledge of the shape, layout and facilities of locks and bridges, lockage (locking process), types of locks, bollards and stairs, etc.
		2.	Ability to apply procedures during approach, entering, locking and leaving the lock or bridge.
11.	use systems of traffic control.	1.	Knowledge of various traffic control systems in use such as day and night signs on locks, weirs and bridges.
		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.
		3.	Ability to use radio equipment in emergency situations.
		4.	Knowledge of Inland Automatic Identification System (AIS) and Inland Electronic Chart and Display Information System (ECDIS).

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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. distinguish various types of craft;	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;	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;	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;	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.	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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. use anchors and handle anchor winches;	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

			anchor winches used on board craft and explain their specific use.
		3.	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;	1. 2. 3. 4. 5. 6.	Knowledge of the methods of stowing the craft with various cargoes in order to ensure safe and efficient transport. Knowledge of procedures to prepare the craft for loading and unloading operations. 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. Ability to establish and maintain effective communications during loading and unloading. Knowledge of the effect of cargo on the stability of the craft. Ability to monitor and report damage of cargo.
3.	distinguish various types of cargo and their qualities;	1. 2. 3.	Knowledge of various types of cargo, for example break bulk cargo, liquid bulk cargo and heavy goods, etc. Knowledge of the logistic chain and multimodal transport. 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;	1. 2.	Knowledge of the function and use of the ballast system. Ability to use ballast system for example by filling or emptying the ballast tanks.
5.	check the amount of cargo;	1. 2. 3. 4.	Knowledge of manual and technical methods of determination of the cargo weight on various types of craft. Knowledge of methods to determine the amount of cargo loaded or unloaded. Knowledge of the calculation of the amount of liquid cargo using the soundings or tank tables, or both. Ability to read draught marks and draught scales.

6.	work according to regulations and safe working rules.	1. 2. 3. 4.	Knowledge of safe working rules and procedures applicable during preparation, loading and discharging phase of craft with various types of cargoes. Ability to comply with safe working rules and procedures applicable during loading and unloading and to use personal protective and rescue equipment. Ability to establish and maintain effective verbal and non-verbal communications with all partners involved with loading and unloading procedures. Knowledge about technical means for handling cargoes in craft and ports and from craft and ports, and labour safety measures during their use.

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[(2)].

The boatman shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	respect regulations and conventions regarding passenger transport;	1. 2.	Knowledge of the applicable regulations and conventions regarding passenger transport. 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.
2.	assist in safe movement of passengers when embarking and disembarking;	1. 2.	Knowledge of procedures applying before and during embarkation and disembarkation of passengers. Ability to position and place the embarkation and disembarkation equipment and to apply safety measures.
3.	assist in supervising passengers during emergency situations;	1.	Knowledge of existing life-saving equipment for emergency situations, of procedures to follow in case of leakage, fire, person over

		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.	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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS
1.	assist in monitoring the engines and propulsion system;	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;	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

			to instructions, e.g. steering equipment.
		5.	Ability to start the main engines following starting procedures.
		6.	Ability to use hydraulic and pneumatic systems.
3.	react adequately to malfunctions of engines;	1.	Knowledge of control equipment in the engine room and of reporting procedures for malfunctions.
		2.	Ability to recognise malfunctions and to take appropriate measures in the case of malfunction including reporting to the craft's management.
4.	operate machinery including pumps, piping systems, bilge and ballast systems;	1.	Knowledge of safe operation and of control of the machinery in the engine room, ballast compartments and bilge following procedures.
		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.
		3.	Ability to prepare and operate shut-off-operations of the engines after operation.
		4.	Ability to operate pumping bilge, ballast and cargo pumping systems.
5.	assist in monitoring electronic and electrical devices;	1.	Knowledge of electronic and electrical systems and components.
		2.	Knowledge of AC and DC current.
		3.	Ability to monitor and evaluate control instruments.
		4.	Knowledge of magnetism and the difference between natural and artificial magnets.
		5.	Knowledge of electro hydraulic system.
6.	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.
7.	define malfunctions and common faults, and describe the actions to prevent damage;	1.	Knowledge of malfunctions outside the engine room and of procedures to follow to prevent damage and procedures to follow if malfunctions occur.

		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.	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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	perform the daily maintenance work on the main engines, auxiliary machinery and control systems;	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;	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;	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;	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.	1.	Knowledge of technical documentation and manuals.
		2.	Ability to document maintenance work.

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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. work with different types of materials and tools used for maintenance and repair operations;	1. Knowledge of the required tools and maintenance of equipment and of safe working and environmental protection rules. 2. Ability to use relevant methods for craft maintenance including ability to choose different materials. 3. Ability to correctly maintain and store tools and maintenance equipment. 4. Ability to conduct maintenance work according to safe working and environmental protection rules.
2. protect health and environment when performing maintenance and repair;	1. Knowledge of applicable cleansing and preserving procedures and rules of hygiene. 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. 3. Ability to clean the engine rooms and engines using the required cleaning 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 required materials according to environmental protection rules. 5. Ability to take care of the craft and household waste disposal according to environmental protection rules.
3. maintain technical devices according to technical instructions;	1. Knowledge of technical instructions for maintenance and maintenance programmes. 2. Ability to take care of all technical equipment according to instructions and to use maintenance programmes (including digital) under supervision.

4.	safely handle wires and ropes;	1. 2.	Knowledge of characteristics of different types of ropes and wires. Ability to use and store them according to safe working practices and rules.
5.	make knots and splices according to their use and maintain them;	1. 2. 3. 4.	Knowledge of procedures to follow in order to ensure safe towage and coupling with means available on board. Ability to splice wires and ropes. Ability to apply knots according to their use. Maintain wires and ropes.
6.	prepare and carry out working plans as a member of a team and check the results.	1. 2. 3. 4. 5.	Knowledge of principles of team work. Ability to carry out maintenance and simple repairs independently as part of the team. Ability to carry out more complex repairs under supervision. Apply various working methods including team work according to safety instructions. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	use information and communication systems;	1. 2. 3. 4.	Knowledge of intercom installation for intra-craft or terminal communication, of the craft's (mobile) phone, radio, (satellite) TV and camera system. Ability to use the craft's (mobile) phone system, the craft's radio, (satellite) TV and camera system. Knowledge of operation principles of the Inland AIS system. Ability to use Inland AIS data to address other craft.
2.	solve different tasks with the help of different types of digital devices, information services (such as River	1.	Knowledge of digital devices available in inland waterway transport.

	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. 2.	Knowledge of the craft's communication system for data collection, storage and update. Ability to process data under strict supervision.
4.	follow instructions for data protection;	1. 2.	Knowledge of data protection regulations and professional secrecy. Ability to process data according to data protection regulations and professional secrecy.
5.	present facts using technical terms;	1. 2.	Knowledge of the required technical and nautical terms as well as terms related to social aspects in standardised communication phrases. 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. 2.	Knowledge of the available information sources. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	follow instructions and communicate with others in terms of shipboard duties;	1. 2. 3.	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. Ability to follow up orders given by the craft's management and other instructions and rules, as well as to accompany inexperienced crew members. 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 1COMPETENCE		COLUMN 2KNOWLEDGE 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:

		• movements of the craft; • provision for safe embarkation and disembarkation of the craft (e.g. gangplank, ship's boat); • 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. 4. Knowledge of relevant health and safety working instructions during activities that take place on board. 5. Knowledge of applicable regulations concerning safe and sustainable working conditions. 6. Ability to prevent accidents in activities which might be hazardous to personnel or craft related to • 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. 7. Ability to understand orders and to communicate with others in relation to on-board duties.
2.	use personal protective equipment to prevent accidents;	1. Knowledge of personal protective equipment. 2. Ability to use personal protective equipment, for example:

		• eye protection, • respiratory protection, • ear protection, • head protection, • protective clothing.
3.	take required precautions before entering enclosed spaces.	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: • 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS
1.	act in the case of emergencies according to applicable instructions and procedures;	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.
2.	perform medical first aid;	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: 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. 6. Ability to improvise bandages and to use materials in emergency kit.
3.	use and maintain personal protective equipment and shipboard life-saving equipment;	1. Knowledge of periodical checks of personal protection, escape routes and rescue equipment as regards function, damage, wear and other imperfections. 2. Ability to react in the case of identified imperfections including relevant communication procedures. 3. Ability to use personal life-saving appliances, for example: • lifebuoys including relevant equipment, and • lifejackets including relevant equipment on lifejackets, such as fixed or flashing lights and whistle firmly secured by a cord. 4. Knowledge of functions of the ship's boat. 5. Ability to prepare, launch, sail, recover and stow the ship's boat.
4.	provide assistance in the case of rescue operations and swim;	1. Ability to rescue and transport a casualty. 2. Ability to use swimming skills for rescue operations.
5.	use emergency escape routes;	Ability to keep escape routes free (according to local features on board).

6.	use internal emergency communication and alarm systems.	Ability to use emergency communication and alarm systems and equipment

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 1COMPETENCE		COLUMN 2KNOWLEDGE 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: • 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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS

1.	protect the environment in accordance with relevant regulations;	1. 2. 3. 4.	Knowledge of the national and international regulations concerning the protection of the environment. Ability to use available documentation and information systems concerning environmental issues according to instructions. Knowledge of the consequences of possible leaks, spills or release of pollutants into the environment. Knowledge of dangerous goods and classifications with regards to environmental aspects.
2.	take precautions to prevent pollution of the environment;	1. 2. 3.	Knowledge of general precautions to prevent pollution of the environment. Ability to follow general precautions and to apply safe bunkering procedures. Ability to take measures according to instructions in the event of collision, for example by sealing of leaks.
3.	use resources efficiently;	1. 2.	Knowledge of efficient use of fuel consumption. Ability to use materials in an economical and energy saving way.
4.	dispose of waste in an environmentally friendly fashion.	1. 2.	Knowledge of applicable regulations concerning waste. Ability to carry out the collection, delivery and disposal of: • 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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. demonstrate mooring, unmooring and hauling (towage) operations;	1. Knowledge of equipment, material and procedures used for mooring, unmooring and hauling (towage) operations. 2. Ability to use materials available on board such as winches, bollards, ropes and wires considering relevant work safety measures including the use of personal protective and rescue equipment. 3. Ability to communicate with the wheelhouse using intercom communication systems and hand signals. 4. Knowledge of the effects of water movement around craft and local effects on sailing circumstances including the effects of trim, shallow water relating to craft's draught. 5. Knowledge of the water movement affecting the craft during manoeuvring including the interaction effects when two craft pass or overtake each other in narrow fairways and the interaction effects on a craft moored alongside when another craft proceeds in the fairway and passes at a short distance.
2. demonstrate coupling operations of push barge combinations;	1. Knowledge of equipment, material and procedures used for coupling operations. 2. Ability to connect and disconnect push/barge combinations using the required equipment and materials. 3. Ability to use equipment and materials available on board for coupling operations considering relevant work safety measures including the use of personal protective and rescue equipment. 4. Ability to communicate with deck crew members involved in coupling operations of push barge combinations.

3.	demonstrate anchoring operations;	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.
4.	take appropriate actions for safety of navigation;	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.
5.	describe the various types of locks and bridges in relation to their operation;	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.
6.	respect the general provisions, signals, signs and marking system.	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.

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.

	2. Ability to use methods to determine the amount of cargo loaded or discharged. 3. Ability to calculate the amount of liquid cargo using the soundings and/or tank tables.

0.4. Marine engineering and electrical, electronic and control engineering

The boatmaster shall be able to:

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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS
1.	protect health and environment when performing maintenance and repair;	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;	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;	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.

4. make knots and splices according to their use and maintain them.	1. Knowledge of procedures to follow in order to ensure safe towage and coupling with means available on board. 2. Ability to splice wires and ropes. 3. Ability to apply knots according to their use. 4. Ability to maintain wires and ropes.

0.6. Communication

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. 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.

0.7. Health and safety and environmental protection

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. apply rules for the safety at work and prevention of accidents;	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: • 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,

		• professional use of portable power tools, • compliance with health and hygiene, • removal of slip, fall and tripping hazards. 4. Knowledge of the relevant health and safety working instructions during activities that take place on board. 5. Knowledge of applicable regulations concerning safe and sustainable working conditions. 6. Ability to prevent activities which might be hazardous to personnel or craft, for example: • 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.
2.	use personal protective equipment to prevent accidents;	1. Knowledge of procedures to use the required equipment for safe working on board. 2. Ability to use personal protective equipment, for example: • eye protection, • respiratory protection, • ear protection, • head protection, • protective clothing.
3.	swim and assist in the case of rescue operations;	1. Ability to use swimming skills for rescue operations. 2. Ability to use rescue equipment in the case of rescue operations. 3. Ability to rescue and transport a casualty.
4.	use emergency escape routes;	1. Knowledge of procedures to follow in an evacuation situation (according to local features on board). 2. Ability to keep escape routes free.

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;	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.	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: • classes of fire extinguishers, • use of different types of portable extinguishers, • influence of wind while approaching the fire.
8.	Perform medical first aid	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: 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. 6. Ability to improvise bandages and materials in emergency kit.

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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. navigate on European inland waterways including locks and lifts according to navigation agreements with agent;	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. 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. 3. Ability to calculate with water levels, depth and (air) draught using relevant information sources. 4. Ability to calculate distances and sailing time using information sources concerning distances, locks, restrictions and sailing speed or time. 5. Knowledge of liability and insurance. 6. Ability to instruct crew members and shipboard personnel to perform tasks in a safe way.
2. respect and apply traffic regulations applicable to navigation on inland waterways to avoid damage;	1. Knowledge of the rules of the road such as the agreed set of rules applicable in inland navigation for the inland waterway which is being sailed to avoid damage (e.g. collision).

		2.	Ability to apply relevant traffic regulations applicable to the waterway which is being sailed.
3.	consider economic and ecological aspects of the craft operation in order to use the craft efficiently and respect the environment;	1. 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.

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

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

The boatmaster shall be able to:

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

	meteorological and morphological characteristics of the main inland waterways;		area and watershed, types of rivers by water source, the slope and course of a river, flow velocity and current pattern, human intervention in the course of a river.
		2.	Knowledge of the meteorological effects on the main inland waterways, e.g. weather forecast and warning services, scale of Beaufort, district division for wind and storm warnings with factors such as air pressure, wind, high and low pressure areas, clouds, fog, types and passage of fronts, ice warning and high water warning.
		3.	Ability to apply geographical, hydrological, meteorological and morphological information.
2.	give order to moor and unmoor craft and to haul towage operations;	1.	Knowledge of technical requirements and documents on mooring and hauling operations.
		2.	Ability to initiate procedures of mooring and unmooring manoeuvre and to ensure that equipment on different types of craft complies with requirements of craft certificate.
		3.	Ability to communicate with deck personnel, e.g., to use communication systems and hand signals.
3.	provide safe access to craft;	1.	Knowledge of technical requirements on facilities to access craft.
		2.	Ability to organise safe access to craft whether sailing, moored or at anchor and to use e.g. stairway, gangplank, ship's boat, fall protection and illumination.
4.	use modern electronic navigation aids;	1.	Knowledge of functions and operation of navigation aids.
		2.	Knowledge of operating principles, limitations and sources of error of navigation aids.
		3.	Ability to use nautical sensors and indicators providing navigation information, e.g. (D) GPS, position, heading, course, speed, distance, depth, Inland ECDIS, radar.
		4.	Ability to use River Information Services (RIS) and technologies,

			e.g. Inland AIS, Inland ECDIS, Electronic Reporting and notices to skipper, FIS (Fairway Information Services), TIS (Traffic Information Services), TMS (Traffic Management Services), CAS (Calamity Abatement Services), ITL (Information for Transport Logistics), ILE (Information for Law Enforcement), ST (Statistics), WCHD (Waterway Charges and Harbour Dues) distance, depth, also in connection with radar.
		5.	Ability to detect misrepresentation of information and apply methods of correction.
5.	respect technical requirements for inland navigation;	1.	Knowledge of structure and content of the applicable technical requirements and of the content of the craft certificate.
		2.	Ability to initiate checks and certification procedures.
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);	1.	Knowledge of the influence of waves, wind and current on sailing, manoeuvring or stationary craft, including the effect of wind e.g. cross wind when manoeuvring, also at nautical superstructures or when entering or leaving ports, locks and secondary waterways.
		2.	Knowledge of the influence of current on sailing, manoeuvring, and stationary craft on waterways used by inland navigation such as the effect of current, e.g. when manoeuvring upstream and downstream or with empty or loaded craft and when e.g. entering and leaving ports, locks or secondary waterways.
		3.	Knowledge of the influence of water movement during sailing, manoeuvring and when stationary such as the influence of water movement regarding draught subject to water depth and the reaction to shallow water effects e.g. by decreasing sailing speed.
		4.	Ability to respect interaction effects when sailing, manoeuvring and when stationary in a narrow fairway

		and to recognise the interaction effects relating to empty or loaded craft. 5. Knowledge of the effect of cargo handling and stowing conditions during sailing, manoeuvring and when stationary relating to stability. 6. Ability to take into account trim, angle of heel, downflooding, lever principle, points of gravity.
7.	use of propulsion and manoeuvring systems as well as appropriate communication and alarm systems;	1. Knowledge of propulsion, steering and manoeuvring systems and their influence on manoeuvrability. 2. Ability to use propulsion, steering and manoeuvring systems. 3. Knowledge of anchoring devices. 4. Ability to use anchor in various circumstances. 5. Knowledge of communication and alarm systems. 6. Ability to give instructions if necessary in the case of an alarm.
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.	1. Basic knowledge of structure of ADN, ADN documents and instructions and visual signals required by ADN. 2. Ability to find instructions in ADN and to identify visual signs for craft subject to ADN.

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

The boatmaster shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE 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.

3.	take appropriate actions if collision is imminent;	1. 2.	Knowledge of rules applicable if collision or accident is imminent. 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.
4.	take appropriate actions after a collision and assessment of damage.	1. 2.	Knowledge of rules applicable after a collision or accident. 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.

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[(3)].

The boatmaster shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	respect the principles of inland waterway shipbuilding and construction;	1. 2. 3.	Knowledge of importance and impact of craft dimensions and dimensions of inland waterway according to applicable rules. Ability to operate craft according to their dimensions and applicable construction legislation. Ability to supervise the compliance of craft with the applicable legislation taking into account construction work.
2.	distinguish construction methods of craft and their behaviour in the water, especially in terms of stability and strength;	1. 2.	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. Knowledge of the craft's behaviour in various conditions and environments.

		3.	Ability to supervise the craft's stability and to give instructions accordingly.
3.	understand structural parts of craft and damage control and analysis;	1. 2. 3. 4.	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. Ability to monitor the craft's core elements for the different types of transport and give instructions accordingly. Knowledge of the longitudinal and transversal structure and local reinforcements in order to prevent and analyse damage. Ability to understand and control the functions of the equipment and usage of different holds and compartments in order to prevent and analyse damage.
4.	take action to protect the craft's watertight integrity.	1. 2.	Knowledge of the craft's watertightness. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	understand functionalities of craft equipment;	1. 2.	Knowledge of mandatory equipment of the craft. Ability to use and control all equipment in relation to their functionalities according to applicable legislation, and give instructions and supervise accordingly.
2.	respect specific requirements for transport of cargo and passengers.	1.	Knowledge of the specific requirements relating to craft construction and equipment needed for the transport of different cargoes and passengers with different types of craft according to applicable legislation.

	2. Ability to give instructions and supervise accordingly. 3. Ability to give instructions and supervise the correct application of the requirements of the certificate.

3. **Cargo handling, stowage and passenger transport**

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

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE 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.

		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.	Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant safe working regulations. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	respect the effect on trim and stability of cargoes and cargo operations;	1. 2.	Knowledge of watertight integrity and stability for all types of cargo and craft. 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. 2.	Knowledge of dedicated software to calculate stability, trim and stress. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	understand relevant national, European and international regulations, codes and standards concerning the transportation of passengers;	1. 2.	Knowledge of the applicable regulations and conventions regarding passenger transport. Ability to ensure safe embarking and disembarking of passengers and their care during the voyage, with special attention to persons needing assistance, and direct assistance to disabled persons and persons with reduced mobility in accordance

			with the training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010.
		3.	Ability to control proceedings in the case of leakage, fire, man over board, collision and evacuation, including crisis and crowd management.
2.	arrange and monitor regular exercises on safety as laid down in the (safety) muster list in order to guarantee safe behaviour in potential situations of danger;	1.	Knowledge of responsibilities under international and national regulations affecting the safety of the vessel, passengers and crew.
		2.	Ability to implement shipboard personnel management and training with respect to safety.
		3.	Apply medical first aid on board vessel.
3.	respect impacts on stability of the passenger vessel in relation to weight distribution of passengers, behaviour and communication with passengers;	1.	Knowledge of rules and regulations with regards to stability.
		2.	Ability to apply relevant measures regarding the watertight integrity, including influence on trim and stability of passenger vessels.
		3.	Knowledge of vessel's design relating to trim and stability, and actions to be taken in the event of partial loss of intact buoyancy/ damage stability of passenger vessels.
		4.	Ability to use standardised communication phrases.
4.	define and monitor on-board risk analysis of limited access for passengers as well as compile an effective on-board protection system in order to prevent unauthorised access;	1.	Knowledge of and compliance with the limitation of the number of passengers according to the passenger vessel certificate.
		2.	Knowledge of safety and security systems preventing unauthorised access.
		3.	Ability to organise watchkeeping (i.e. night watch) systems with respect to safety and security.
5.	analyse reports given by passengers (i.e. unforeseen occurrences, defamation, vandalism) in order to react appropriately.	1.	Knowledge of passenger rights and complaints from passengers, and of risks connected to passenger transport for the environment.
		2.	Ability to prevent environmental pollution by passengers and crew.
		3.	Ability to handle complaints and conflict management.

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

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

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

The boatmaster shall be able to:

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

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

The boatmaster shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS
1.	prevent potential damage to electric and electronic devices on board;	1. Knowledge of electro-technology, electronics and electrical equipment and safety devices e.g. automation, instrumentation and control systems to prevent damage. 2. Ability to apply safe working practices.
2.	test control systems and instruments to recognise faults and at the same time take actions to repair and	1. Knowledge of the craft's electro-technical testing devices.

	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. 2. 3.	Knowledge of safety requirements for working with electrical systems. Knowledge of the construction and operational characteristics of shipboard electrical systems and equipment in relation to shore-based facilities. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	ensure appropriate use of tools to maintain and repair technical devices;	1. 2.	Knowledge of the maintenance and repair procedures for technical devices. 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. 2.	Knowledge of characteristics of maintenance and repair material for technical devices. Ability to apply maintenance and repair procedures on devices according to manuals.
3.	evaluate technical and internal documentation.	1. 2.	Knowledge of construction specifications and technical documentation. 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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS

1.	ensure safe behaviour of crew members with regard to the use of materials and additives;	1. Knowledge of safe and effective maintenance and repair procedures. 2. Ability to monitor and supervise crew to apply precautions and contribute to the prevention of pollution of the marine environment. 3. Ability to apply and observe the applicable labour regulations and safe working rules and ensure they are respected.
2.	define, monitor and ensure work orders so that crew members are able to perform maintenance and repair work independently;	1. Knowledge of cost effective and efficient maintenance work and of applicable legal requirements. 2. Ability to use (digital) maintenance planning programmes effectively. 3. Ability to control the maintenance and repair of the craft's inner and outer parts considering applicable legal requirements such as safety data sheets. 4. Ability to manage the hygiene of the craft. 5. Ability to organise the waste management taking into account environmental regulations such as the Convention on the Collection, Deposit and Reception of Waste 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.
3.	purchase and control material and tools with regard to health and environmental protection;	1. Ability to administer the craft's stocks. 2. Ability to organise a safe working system on board including the use of hazardous materials for cleaning and conservation work. 3. Ability to check the quality of the repairs.
4.	ensure wires and ropes are being used according to the manufacturer's specifications and intended purpose.	Ability to instruct and supervise the crew in accordance with the working procedures and safety limitations when using ropes and wires according to the craft's certificate and datasheets.

6. **Communication**

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

The boatmaster shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	organise and stimulate teambuilding and coach the crewmembers regarding shipboard duties and, if necessary, take disciplinary measures;	1. 2. 3. 4. 5. 6.	Knowledge of human resource management. Ability to give instructions to the crew in an appropriate and professional way. Ability to explain given instructions to the crew. Ability to give feedback to the crew about professional and social behaviour on board. Ability to apply task and workload management, including: planning and coordination, personnel assignment, time and resource constraints, prioritisation. Ability to recognise and prevent fatigue.
2.	instruct crew on information- and communication systems;	1. 2.	Knowledge of information- and communication systems available on board. 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. 2.	Knowledge of the use of all the craft's computer systems. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	describe circumstances by using relevant technical and nautical terminology;	1. 2.	Knowledge of the correct use of relevant technical and nautical terms. Ability to master communication.

2.	retrieve, evaluate and use information with relevance to safety on board as well as nautical-technical issues.	1. 2.	Knowledge of procedures to follow in all distress, emergency and safety communication. Ability to use the standard communication phrases.

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

The boatmaster shall be able to:

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

	3. Ability to instruct and supervise crew members regarding hygienic standards. 4. Ability to instruct crew members in planning purchasing possibilities.

7. **Health and safety, passenger rights and environmental protection**

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

The boatmaster shall be able to:

COLUMN 1COMPETENCE	COLUMN 2KNOWLEDGE 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: • hazards of enclosed spaces, • atmosphere tests prior to entry,

	• control of entry into enclosed spaces, • safeguards for enclosed space entry, • protective equipment (e.g. harnesses and respiratory equipment), • work in enclosed spaces. 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;	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;	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;	1. Knowledge of the applicable fire prevention laws and regulation on the use of tobacco and possible ignition sources. 2. Ability to comply with relevant regulations on fire detection systems; fixed and mobile fire-extinguishing equipment and related appliances e.g. pumping, rescue, salvage, personal protective and communication equipment. 3. Ability to control the monitoring and maintenance of fire detection and extinguishing systems and equipment. 4. Ability to instruct crew and shipboard personnel to apply safe

			working rules and to maintain personal protection and personal safety equipment.
4.	perform first aid;	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. 2. 3.	Knowledge of legislation applicable to life-saving appliance and safe working condition regulations. Ability to maintain and perform periodic checks of operational condition of life-saving, fire-fighting and other safety equipment and systems. 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. 2.	Knowledge of training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	initiate preparations for rescue plans of different types of emergencies;	1. 2.	Knowledge of different types of emergencies which may occur such as collision, fire, flooding, sinking. 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. 2. 3.	Knowledge of fire-fighting procedures with particular emphasis on tactics and command. Knowledge of the use of water for fire-extinguishing with regard to the effect on vessel stability, and ability to take appropriate measures. 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;	1. 2.	Knowledge of particular characteristics and facilities of rescue devices. Ability to launch and recover a ship's boat and instruct crew members and shipboard personnel on the use of a ship's boat.
4.	give instructions on rescue plans, escape routes and internal communication and alarm systems.	1. 2.	Knowledge of legislation applying to rescue plans and safety rota. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	take precautions to prevent environmental pollution and use relevant equipment;	1. 2. 3. 4.	Knowledge of procedures to prevent pollution of the environment. Ability to take precautions to prevent pollution of the environment. Ability to apply safe bunkering procedures. Ability to take measures and give instructions in the event of damage, collision and running aground including the sealing of leaks.
2.	apply environmental protection laws;	1. 2.	Knowledge of environmental regulations. Ability to motivate crew members and board personnel to take relevant measures for environmentally friendly behaviour or to behave in an environmentally friendly way.
3.	use equipment and materials in an economical and environmentally friendly way.	1. 2.	Knowledge of procedures to make sustainable use of resources. Ability to instruct crew in using equipment and materials in an

			economical and environmentally friendly way.
4.	instruct and monitor sustainable waste disposal.	1. 2.	Knowledge of legislation on waste disposal. 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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	use information supplied from specific nautical information sources and rules applicable for inland waterways with a maritime character.	1. 2. 3. 4.	Knowledge of use of nautical charts and maps of inland waterways with maritime character. 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. 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. Ability to use notices to skippers and mariners and other information

	services such as sailing directions, planning guides, light lists, maritime safety information (MSI). 5. Knowledge of traffic regulations applying on inland waterways with maritime character including relevant parts of the International Regulations for Preventing Collisions at Sea. 6. Knowledge of rules applying in emergency situations on inland waterways with a maritime character. 7. Ability to use maritime equipment foreseen by specific regulation.

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
1. respect tides, tidal, weather forecast and conditions before casting-off and when sailing.	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. 2. Knowledge of effects of weather conditions, the shape of land and other factors on tidal currents. 3. Ability to determine the impact of tidal level, current, weather conditions and waves, on the planned voyage for safe navigation.

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
1. use SIGNI (Signalisation de voies de Navigation Intérieure), IALA	1. Knowledge of buoyage, IALA, region A, marking and signal systems such as buoyage direction,

(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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
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.	1. General knowledge of radio waves and knowledge of the principles of radar operation and more specifically • 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.). 2. General knowledge of the working principle of rate-of-turn indicators and their application. 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

	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 1COMPETENCE	COLUMN 2KNOWLEDGE 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 • 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 1COMPETENCE	COLUMN 2KNOWLEDGE 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).

		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

	indicators and Inland ECDIS combined with radar. 4. Knowledge of the crewing requirements in situations with reduced visibility and good visibility. 5. Ability to adequately attribute tasks to crew members and give appropriate instructions.

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

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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. organise the use of life-saving equipment.	1. Knowledge of safety control plans including: • safety rota and safety plan, • emergency plans and procedures. 2. Knowledge of life-saving equipment and its functions and ability to demonstrate the use of life-saving equipment.

	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 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS
1.	apply safety instructions;	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;	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.

3.	provide assistance and give instructions so that disabled persons and passengers with reduced mobility can embark, stay on board and disembark safely.	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.
		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.

3. The expert shall be able to communicate in elementary English.

The expert shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	communicate safety related issues in elementary English.	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;
		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.

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	
1.	provide assistance to passengers concerning passenger rights.	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

	handling of complaints and the general rules on enforcement. 2. Ability to inform passengers on the applicable passenger rights. 3. Ability to implement applicable procedures to provide access and professional assistance.

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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. ensure compliance with relevant legislation and standards applicable to craft using LNG as fuel;	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.
2. ensure compliance with other relevant health and safety regulations when sailing and moored.	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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS

1.	recognise specific points of attention related to the specific characteristics of LNG;	1. 2.	Knowledge of definition, composition and quality attributes of LNG, Safety Data Sheet (SDS): physical properties and characteristics of the product and environmental characteristics. 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.
2.	recognise risks and manage them.	1. 2.	Knowledge of safety plans, hazards and risk, including knowledge of muster list and its related safety tasks. 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.

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

The expert shall be able to:

COLUMN 1COMPETENCE		COLUMN 2KNOWLEDGE AND SKILLS	
1.	operate the systems specific to LNG on-board and connected to on-board systems in a safe way.	1.	Knowledge of technical aspects of the LNG system such as • 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,

	• 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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. perform and monitor regular checks of the LNG system.	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 1COMPETENCE	COLUMN 2KNOWLEDGE AND SKILLS
1. perform and monitor bunkering procedures in a safe way.	1. Knowledge of • 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

	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. 3. Ability to ensure compliance with relevant safety zone regulations. 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. 5. Ability to purge pipe systems, to close valves and disconnect craft from bunkering installation and to report end of procedure after bunkering.

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
1. prepare the LNG system for craft maintenance and for renewed use.	1. Knowledge of correct purging procedures such as use of drainage of gas and flushing of LNG system prior to shipyard stay. 2. Ability to perform • 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
1. react appropriately in emergency situations (such as LNG spills and leaks, skin contact with low temperature substance, fire, incidents related to transport of	1. Knowledge of emergency measures and on-board safety documentation (including the safety plan and safety instructions). 2. Ability to react appropriately in case of emergencies such as

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.

ANNEX II

STANDARD FOR PRACTICAL EXAMINATIONS

I.STANDARDS FOR THE PRACTICAL EXAMINATION FOR OBTAINING A SPECIFIC AUTHORISATION FOR SAILING WITH THE AID OF RADAR

1. **Specific competences and assessment situations**

Examiners are free to decide about the content of the individual examination elements.

Examiners shall test elements 1-16 and at least one of the elements 17 to 19. Applicants must reach a minimum of 7 out of 10 points in each element.

No	Competences	Examination element
1	1.1.	switch on, adjust and control the functioning of navigational radar installations;
2	1.1.	switch on, adjust and control the functioning of rate-of-turn indicator;
3	1.1.	interpret the radar display correctly by setting the range,

		resolution, brightness, gain, contrast, other connected apparatus, centre and tune;
4	1.1.	use the rate-of-turn indicator e.g. by setting the rate-of-turn in accordance with maximum rate-of-turn of the craft;
5	2.1	identify the position of the antenna on the screen and the heading line, the setting of position, course and turning direction of the own craft and the determining distances and reach;
6	2.1	interpret the behaviour of other traffic participants (stationary craft, oncoming craft and craft heading the same direction);
7	2.2	analyse the information supplied by radar such as heading line, electronic bearing line, range rings, and variable range marker, target trails, decentring and parallel lines and to explain the radar picture;
8	3.1	reduce disturbances coming from the own craft by checking antenna, by reducing shadows and multiple reflections e. g. in the area of holds;
9	3.2	take action to reduce disturbances from the environment by reducing influence from rain and waves, by correctly dealing with scattered fields (e.g. from bridges), false/ ghost echoes from power transmission lines and cables as well as with shadowing and multipath effects;
10	3.3	remove disturbances coming from other navigational radar installations by using interference rejection;

11	4.1.	correctly attribute tasks to deck crew members;
12	4.1.	ensure cooperation between the person at helm and the person using navigational radar installations according to visibility and the features of the wheelhouse;
13	4.1	use rate-of-turn indicators and inland ECDIS or similar displays in combination with radar;
14	4.1.	act according to police regulations in case of reduced visibility and in case of good visibility;
15	4.1.	use radio, sound signals and to agree on course by using information supplied by radar;
16	4.1.	give commands to the person at helm including checking the person's required knowledge and skills
17	5.1	take appropriate measures in high traffic density;
18	5.1.	take appropriate measures in the case of failure of devices;
19	5.1.	react appropriately in unclear or dangerous traffic situations.

2. **Technical requirements for craft used for practical examination**

A craft used for a practical examination shall be covered by Article 2 of Directive (EU) 2017/2397.

Craft used for practical exams to assess the competence of a boatmaster sailing with aid of radar shall fulfil the technical requirement laid down in Article 7.06 of standard ES-TRIN 2017/1[(4)]. Craft shall be equipped with an operable inland ECDIS or a comparable device for displaying electronic charts.

II. STANDARDS FOR THE PRACTICAL EXAMINATION FOR OBTAINING A CERTIFICATE OF QUALIFICATION AS A PASSENGER NAVIGATION EXPERT

1. **Specific competences and assessment situations**

Examiners are free to decide about the content of the individual examination elements.

Examiners shall test 11 out of 14 category I elements, provided that: element 16 and element 20 are assessed.

Examiners shall test 7 out of 8 category II elements.

Applicants can reach 10 points in each element as a maximum result.

For category I, applicants must reach a minimum of 7 out of 10 points in each element. For category II, applicants must reach a minimum total score of 45 points.

No	Competences	Examination elements	Category I-II
1	1.1.	demonstrate the use of lifebuoys for passengers;	I
2	1.1.	demonstrate the use of lifejackets for passengers and deck crew members and shipboard personnel including specific individual life-saving equipment for persons not undertaking duties for the safety rota;	I
3	1.1.	demonstrate the use of appropriate equipment for evacuation to shallow water, to the bank or to another craft;	I
4	1.1.	demonstrate the use of ship's boats including its engine and searchlight or platform according to Article 19.15 ES-TRIN 2017/1 replacing the ship's boat or collective life-saving appliances according to Article 19.09(5) to (7) ES-TRIN 2017/1;	I
5	1.1.	demonstrate the use of suitable stretcher;	I
6	1.1.	demonstrate the use of first aid kits;	I

7	1.1.	demonstrate the use of self-contained breathing apparatus sets and sets of equipment as well as smoke hoods according to Article 19.12(10) ES-TRIN 2017/1 or a combination thereof;	I
8	2.1.	check and monitor inspection intervals for the equipment mentioned in No 1-7 of this table;	II
9	2.1.	check and monitor the necessary qualification of persons using first aid kits and self-contained breathing apparatus sets and sets of equipment as well as smoke hoods;	II
10	2.1.	stow appropriately and distribute life-saving appliances;	I
11	2.3.	identify areas accessible for passengers with reduced mobility;	II
12	1.1.	demonstrate the use of life-saving equipment for passengers with reduced mobility;	I
13	2.1	explain elements of the safety rota and the safety plan;	II
14	2.1.	attribute tasks to shipboard personnel according to safety rota and safety plan;	II
15	2.3	attribute tasks to shipboard personnel with regard to non-discriminatory access and safety	II

		rota planning for passengers with reduced mobility;	
16	2.3	organise training and instructions for persons with reduced mobility according to Annex IV to Regulation (EU) No 1177/2010;	I
17	2.2	organise the evacuation of a passenger area explaining specific measures to take in case of collision, running aground, smoke and fire;	I
18	2.2.	fight incipient fire and handle waterproof and fire-retardant doors;	I
19	2.2.	provide necessary information to the boatmaster, passengers and external rescue forces in a simulated emergency;	II
20	3.1	use elementary English vocabulary and pronounce wording suited to guide passengers and shipboard personnel in standard situations and to alert and guide them in the event of emergencies;	I
21	4.1	explain which passenger rights are applicable;	I
22	4.1	implement applicable procedures to provide access and professional assistance to passengers according	II

		to Regulation (EU) No 1177/2010.	

2. **Technical requirements for craft and shore installation used for practical examination**

The location where the assessment is taking place shall be equipped with life-saving equipment for passenger vessels necessary to demonstrate examination element No 2 including specific life-saving equipment for cabin vessels according to the applicable ES-TRIN 2017/1. It shall be equipped with a safety rota and a safety plan complying with ES-TRIN 2017/1and suitable spaces and equipment to assess the ability to organise evacuation and behaviour to fight and react in case of a fire.

A craft used for a practical examination shall be covered by Article 2 of Directive (EU) 2017/2397.

III. STANDARDS FOR THE PRACTICAL EXAMINATION FOR OBTAINING A CERTIFICATE OF QUALIFICATION AS A LIQUEFIED NATURAL GAS (LNG) EXPERT

1. **Specific competences and assessment situations**

Examiners are free to decide about the content of the individual examination elements. Examiners shall test 9 out of 11 category I elements.

Examiners shall test 5 out of 7 category II elements.

Applicants can reach 10 points in each element as a maximum result.

For category I, applicants must reach a minimum of 7 out of 10 points in each tested element. For category II, applicants must reach a minimum total score of 30 points.

No	Comp.	Examination elements	Category I-II
1	1.1	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;	II
2	1.2	instruct and monitor crew member operations in order to ensure compliance with other relevant health and safety regulations;	II

3	2.2	conduct risk 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;	II
4	3.1	present the mode of action of LNG;	II
5	3.1	read pressure and temperature, operate stripping, containment, pipe, gas supply, ventilation, safety systems, valves and to manage boil-off of LNG;	I
6	4.1	perform daily, weekly and regular periodic maintenance,	I
7	4.1	correct malfunctions detected during maintenance;	I
8	4.1	document maintenance work;	II
9	5.1	start and monitor bunkering procedures including 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;	I
10	5.1	ensure compliance with relevant safety zone regulations;	II
11	5.1	report start of bunkering procedure;	II

12	5.1	perform safe bunkering according to manual, including ability to monitor pressure, temperature and LNG level in tanks;	I
13	5.1	purge pipe systems, to close valves and disconnect craft from bunkering installation and to report end of procedure after bunkering;	I
14	6.1	perform • 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;	I
15	7.1	react appropriately in case of emergencies such as # 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	I

		fuel tanks, double-walled pipes);	
16	7.1	react appropriately in case of fire in the vicinity of LNG fuel tanks or in the engine rooms;	I
17	7.1	react appropriately in case of pressure built up in pipe systems after emergency shut down activation in case of imminent release or venting;	I
18	7.1	take emergency measures and remote surveillance emergency measures, e.g. to properly control LNG fire, pool, jet and flash fire.	I

2. **Technical requirements for craft and shore facilities used for practical examination**

Craft and shore facilities must be equipped with

1. Documentation used for assessment such as

   1.1. Safety rota (including safety plan and safety instructions) according to Article 30.03 ES-TRIN 2017/1,

   1.2. Risk assessment according to Annex 8 Section I 1.3. ES-TRIN 2017/1,

   1.3. All other documents required by Article 30.01(5) ES-TRIN 2017/1 including a detailed operating manual according to Annex 8 Section I 1.4.9 ES-TRIN 2017/1,

2. Specific systems for LNG use

   2.1. a LNG bunkering system including a bunkering station,

   2.2. a LNG containment system,

   2.3. a LNG piping system,

   2.4. a gas supply system,

   2.5. a gas preparation system,

3. A suitable engine room,

3.1. a ventilation system,

3.2. a leakage prevention and control system,

3.3. a monitoring and safety system and

3.4. the additional firefighting systems.

A craft used for a practical examination shall be covered by Article 2 of Directive (EU) 2017/2397.

IV. STANDARDS FOR PRACTICAL EXAMINATION FOR OBTAINING A CERTIFICATE OF QUALIFICATION AS A BOATMASTER

1. **Specific competences and assessment situations**

The examination comprises two parts: one on journey planning and, a second one, on journey execution. The assessment for the journey execution shall take place in a single session. Each part of the examination consists of several elements.

For boatmasters, who have neither completed an approved training programme based on the standards of competence for the operational level nor passed an assessment of competence by an administrative authority aimed at verifying that the standards of competence for the operational level are met, the requirements are supplemented with the specific elements laid down in the standards set out in Section V (additional module on supervision in the context of the practical examination for obtaining a certificate of qualification as a boatmaster).

With respect to the content, the examination shall comply with the following requirements:

Journey planning

The part of the examination on journey planning comprises the elements listed in the table in Appendix 1. Elements are grouped in categories I and II according to their importance. 10 elements from each category shall be selected from that list and tested in the examination.

Journey execution

Applicants are required to demonstrate that they are capable of executing a journey. An indispensable precondition for that is that applicants handle the craft themselves. The individual elements to be tested can be found in the table in Appendix 2 and – unlike the journey planning part – all of them shall always be tested.

Examiners are free to decide about the content of each individual examination element.

Appendix 1

Content of the part of the examination on journey planning

In each category, 10 elements shall be tested. The applicant can reach 10 points in each element as a maximum result.

For category I, applicants must reach a minimum of 7 out of 10 points in each tested element. For category II, applicants must reach a minimum total score of 60 points.

No.	Competences	Examination elements	Category I-II

1	1.1.1	navigate on European inland waterways including locks and lifts according to navigation agreements with the agent;	I
2	1.1.3	consider economic and ecological aspects of the craft operation in order to use the craft efficiently and respect the environment;	II
3	1.1.4	take account of technical structures and profiles of the waterways, and take precautions;	I
4	1.2.1	ensure safe manning of craft in accordance with the applicable rules;	I
5	1.3.3	ensure safe access to the craft;	II
6	2.1.1	respect the principles of inland waterway shipbuilding and construction;	II
7	2.1.2	distinguish construction methods of craft and their behaviour in the water, especially in terms of stability and strength;	II
8	2.1.3	understand structural parts of craft and damage control and analysis;	II
9	2.1.4	take action to protect the craft’s watertight integrity;	I
10	2.2.1	understand functionalities of craft equipment;	II

11	2.2.2	respect specific requirements for transport of cargo and passengers;	I
12	3.1.1	understand relevant national, European and international regulations, codes and standards concerning the operation of transporting cargoes;	II
13	3.1.2	compose stowage plans including knowledge of loading cargoes and ballast systems in order to keep hull stress within acceptable limits;	I
14	3.1.3.	control loading and unloading procedures with regard to safe transport;	I
15	3.1.4	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;	II
16	3.2.1	respect the effect on trim and stability of cargoes and cargo operations;	I
17	3.2.2	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;	I
18	3.3.1	understand relevant national, European and international regulations, codes	II

		and standards concerning the transportation of passengers;	
19	3.3.2	arrange and monitor exercises on safety as laid down in the (safety) muster list in order to guarantee safe behaviour in potential situations of danger;	II
20	3.3.3	communicate with passengers in emergency situations;	I
21	3.3.4	define and monitor on board risk analysis of limited access for passengers as well as compile an effective on board protection system in order to prevent unauthorised access;	II
22	3.3.5	analyse reports given by passengers (i.e. unforeseen occurrences, defamation, vandalism) in order to react accordingly;	II
23.	4.4.1	prevent potential damage to electric and electronic devices on board;	II
24	4.5.3	evaluate technical and internal documentation;	II
25	5.1.1	ensure safe behaviour of crew members with regard to the use of materials and additives;	II
26	5.1.2	define, monitor and ensure work orders so that crew members are able to perform maintenance	II

		and repair work independently;	
27	5.1.3	purchase and control material and tools with regard to health and environmental protection;	II
28	5.1.4	ensure wires and ropes are being used according to the manufacturer's specifications and intended purpose;	II
29	6.3.2	apply national, European and international social legislation;	II
30	6.3.3	follow strict alcohol and drug prohibition and react appropriately in cases of infringement, take responsibility and explain consequences of misbehaviour;	II
31	6.3.4	organise provisioning and preparation of meals on board;	II
32	7.1.1	apply national and international legislation and take appropriate measures for health protection and the prevention of accidents;	II
33	7.1.2	control and monitor validity of the craft's certificate and other documents relevant to the craft and its operation;	I
34	7.1.3	comply with safety regulations during all working procedures by using relevant safety measures in order to avoid accidents;	I

35	7.1.4	control and monitor all safety measures necessary for cleaning enclosed spaces before persons open, enter and clean those facilities;	II
36	7.2.5	control life-saving appliances and the correct application of personal protection equipment;	II
37	7.3.1	initiate preparations for rescue plans of different types of emergencies;	II
38	7.4.1	take precautions to prevent environmental pollution and use relevant equipment;	II
39	7.4.2	apply environmental protection laws;	II
40	7.4.3	use equipment and materials in an economical and environmental-friendly way.	II

Appendix 2

Content of the part of the examination on journey execution

All elements listed in this part of the examination shall be tested. In each element, the applicant must reach a minimum of 7 out of a maximum of 10 points.

No	Competences	Examination elements
1	1.1.1	Navigate and manoeuvre the craft appropriate to the situation and in accordance with the statutory requirements of navigational law (as a function of current speed and direction, checking of depth of the water and loaded draught, underkeel clearance, traffic density,

		interaction with other craft etc.);
2	1.1.4	Dock and cast off the inland waterway craft, in a right and proper manner and in compliance with statutory and/or safety-related requirements;
3	1.1.5	Readjust or reset navigation aids if necessary;
4	1.1.5	Gather all the information relevant for navigation supplied by the navigation aids and use it to adapt the handling of the craft;
5	1.1.6	Turn on the necessary devices at the steering position (navigation aids such as Inland AIS, Inland ECDIS) and adjust them;
6	2.2.2	Check that the craft is ready for the journey in accordance with the regulations, and that the cargo and other objects have been stowed safely in accordance with the regulations;
7	4.2.2	Appropriately respond to malfunctions (to be simulated, where appropriate) during navigation (e.g. increase in temperature of cooling water, drop in engine oil pressure, breakdown of main machine(s), rudder failure, disturbed radio communications, breakdown of radio telephone device, uncertain direction of other craft), decide on next steps and arrange or take appropriate steps as regards maintenance work to ensure safe navigation;
8	5.1.2	Handle the craft in such a way as to be able to anticipate the possibility of an accident and avoid unnecessary wear and tear;

		frequent checking of the available indicators;
9	6.1.1	Establish specific communication with crew members (on board communication) concerning various manoeuvres and as part of staff meetings (for example briefings) or with persons with whom cooperation is required (using all radio communication networks);
10	6.2.2	Communicate with the persons concerned (on board) and with other players (sector traffic centre, other craft etc.) during these activities in accordance with the regulations (networks, waterways along the route travelled): use of radio telephone, telephone;
11	7.3.3	Deal with an emergency situation (to be simulated, where appropriate – e.g. man overboard, breakdown incident, fire on board, the escape of hazardous substances, leaks) by means of prompt and prudent rescue and/or damage limitation manoeuvres or measures. Notifying and informing the relevant individuals and competent authorities in the event of an emergency;
12	7.3.4	Communicate with the persons concerned in the event of malfunctions (on board) and with other players (use of radio telephone, telephone) so that problems can be resolved.

2. Technical requirements for craft used for the practical examination

The craft used for a practical examination shall be covered by Article 2 of Directive (EU) 2017/2397.

V. STANDARDS FOR THE ADDITIONAL MODULE ON SUPERVISION IN THE CONTEXT OF THE PRACTICAL EXAMINATION FOR OBTAINING A CERTIFICATE OF QUALIFICATION AS A BOATMASTER

Candidates who have neither completed an approved training programme based on the standards of competence for the operational level nor passed an assessment of competence by an administrative authority aimed at verifying that the standards of competence for the operational level are met, have to pass this module.

The requirements below need to be met in addition to those referred to under the standards for the practical examination for obtaining a certificate of qualification as a boatmaster.

1. Specific competences and assessment situations

Examiners are free to decide about the content of the individual examination elements. Examiners shall test 20 out of 25 category I elements.

Examiners shall test 8 out of 12 category II elements.

Applicants can reach 10 points in each element as a maximum result.

For category I, applicants must reach a minimum of 7 out of 10 points in each element. For category II, applicants must reach a minimum total score of 40 points.

No	Competences	Examination elements	Category I-II
1	0.1.1	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;	I
2	0.1.2	connect and disconnect push/ barge combinations using the required equipment and materials;	I
3	0.1.2	use equipment and materials available on board for coupling operations considering relevant work safety measures including the use of personal protective and rescue equipment;	I

4	0.1.3	demonstrate anchor manoeuvres;	I
5	0.1.3	use equipment and materials available on board for anchoring operations considering relevant work safety measures including the use of personal protective and rescue equipment;	I
6	0.1.4	secure the watertightness of the craft;	I
7	0.1.4	work according to the checklist on deck and in the living quarters such as waterproofing and securing of the hatches and holds;	I
8	0.1.5	explain and demonstrate the applicable procedures to deck crew member while passing locks, weirs and bridges;	II
9	0.1.6	handle and maintain the craft's day and night marking system, signs and sound signals;	I
10	0.3.3	use methods to determine the amount of cargo loaded or discharged;	II
11	0.3.3	calculate the amount of liquid cargo using the soundings or tank tables, or both;	II
12	0.4.1	operate and control the machinery in the engine room following procedures;	I
13	0.4.1	explain safe function, operation and maintenance of the bilge and ballast	II

		system including: reporting incidents associated with transfer operations and ability to correctly measure and report tank levels;	
14	0.4.1	prepare and operate shut-off-operations of the engines after operation;	I
15	0.4.1	operate pumping bilge, ballast and cargo pumping systems;	I
16	0.4.1	use hydraulic and pneumatic systems;	I
17	0.4.2	use switchboard;	I
18	0.4.2	use shore supply;	I
19	0.4.3	apply safe working procedures in maintenance and repair of engines and equipment;	I
20	0.4.5	maintain and to take care of pumps, piping systems, bilge- and ballast systems;	II
21	0.5.1	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;	II
22	0.5.1	clean the engine rooms and engines using the appropriate cleansing materials;	I
23	0.5.1	clean and to preserve the outer parts, the	II

		hull and the decks of the craft in the correct order using the appropriate materials according to environmental rules;	
24	0.5.1	take care of the craft and household waste disposal according to environmental rules;	II
25	0.5.2	maintain and take care of all technical equipment according to technical instructions and use maintenance programmes (including digital);	I
26	0.5.3	use and store ropes and wires according to safe working practices and rules;	II
27	0.5.4	splice wires and ropes, apply knots according to their use and maintain wires and ropes;	I
28	0.6.1	use required technical and nautical terms as well as terms related to social aspects in standardised communication phrases;	I
29	0.7.1	prevent dangers related to on board hazards;	I
30	0.7.1	prevent activities which might be hazardous to personnel or craft;	I
31	0.7.2	use personal protective equipment;	I
32	0.7.3	use swimming skills for rescue operations;	II

33	0.7.3	use rescue equipment in the case of rescue operations and rescue and transport a casualty;	II
34	0.7.4	keep escape routes free;	II
35	0.7.5	use emergency communication and alarm systems and equipment;	I
36	0.7.6, 0.7.7	apply various methods of firefighting and extinguish equipment and fixed installations;	I
37	0.7.8	perform medical first aid.	I

2. **Minimum requirements for the craft on which the practical examination will take place**

A craft used for a practical examination shall be covered by Article 2 of Directive (EU) 2017/2397.

ANNEX III

STANDARDS FOR THE APPROVAL OF SIMULATORS

I.TECHNICAL AND FUNCTIONAL REQUIREMENTS FOR VESSEL HANDLING AND RADAR SIMULATORS IN INLAND NAVIGATION

No	Item	Quality level of technical requirement	Test procedure	Vessel handling simulator	Radar simulator
1.	Inland navigational radar installation	At least one inland navigational radar installation with the same functionalities as a type	It has to be verified if the installation has the same functionalities as the type approved inland	x	x

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		approved inland navigational radar installation according to ES-TRIN has to be installed on the simulator.	navigational radar installation.		
2.	Communication system	The simulator shall be fitted with a communication system comprising — an alternative internal telephone link and — two independent inland waterway radio communication systems.	It has to be verified if the simulator is fitted with communication systems.	x	x
3.	Inland ECDIS	At least one Inland ECDIS has to be installed on the simulator.	It has to be verified if the installation has the same functionalities as an Inland ECDIS.	x	
4.	Exercise area	The exercise area contains at least a representative river with side arms or canals and harbours	Visual inspection of the area	x	x
5.	Sound signals	Sound signals can be given using foot	It has to be verified if foot pedals	x	x

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		pedals or buttons.	or buttons function correctly.		
6.	Night time navigation lights panel	Night-time navigation lights panel is installed on the simulator.	It has to be verified if night time navigation lights panel functions correctly.	x	x
7.	Mathematical models for craft	At least three mathematical models of representative types of craft with different methods of propulsion and loading conditions including one small craft which could be a tug, one medium-sized craft (e.g. 86 m length) and one large craft (e.g. 110 or 135 m length).	It has to be verified if the three mandatory models are available.	x	
8.	Mathematical models for craft	At least one mathematical model of representative type of craft (e.g. 86 m length).	It has to be verified if the mandatory model is available.		x
9	Number of available target craft[a]	The simulator shall include target craft of at least 5 European Conference of Ministers of Transport	It has to be verified if the required number and variety of target craft is available.	x	x

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		(CEMT) classes.			
10.	Operator station	The operator shall be able to communicate on all very high frequency (VHF) channels. The operator has to be able to monitor the use of the channels.	It has to be verified if the operator can communicate on all VHF channels and if the operator can monitor the use of all channels.	x	x
11.	Various exercises	There shall be a possibility to create, store and run various exercises, which shall be manipulable while running.	Different operations shall be performed.	x	x
12.	Separable exercises	During examination of more than one applicant, the applicants' exercises shall not interfere with the examination of another applicant.	The exercise shall be replayed for each applicant.	x	x
13.	Craft's bridge functions and layout	The wheelhouse section shall be designed for radar navigation by one person as	It has to be verified if the bridge layout and equipment functions correspond to	x	x

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		set out in ES-TRIN 2017/1.	the applicable technical requirements for inland waterway craft. It has to be verified if the wheelhouse is designed for one person steering operations.		
14.	Steering station (bridge/ cubicle)	Steering stations resemble those aboard inland craft as regards form and dimensions.	Visual inspection.	x	x
15.	Operator station	1. There shall be a separate room in which operator(s) and examiner(s) can be seated, where the examiner must be able to perceive the radar image of the applicant.	Visual inspection of the operator station and functionality check.	x	x

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		2. The wheelhouse and operator space must be separate from each other. They shall be as much soundproof as possible. 3. The operator must be able to operate at least two VHF channels at the same time. 4. The operator must be able to clearly identify which radio communication channel the applicant		

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		is using.			
16.	Briefing/ Debriefing station	Possibility for replay at an operator or debriefing station.	Assessment activities have to be monitored.	x	x
Own craft[b]					
17.	Degrees of freedom	The simulator shall be able to visualise the motion in six degrees of freedom.	The degrees of freedom implemented in the simulator can be evaluated by observing the visualisation system or by instruments. Therefore, the following manoeuvres are carried out using small craft which usually move more distinctively and faster than bigger ones. — If the horizon is swinging when looking forward during navigating along curves, the roll motion is implemented.	x	

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			— If the craft's bow raises and drops with strong longitudinal accelerations, the pitch motion is implemented. — If the echo sounder display changes when running at higher speeds at constant water depth, the heave motion is implemented. This test implies the modelling of the squat effect.		
18.	Degrees of freedom	The simulator shall be able to simulate the motion in	The degrees of freedom implemented in the		x

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		three degrees of freedom.	simulator have to be evaluated.		
19.	Propulsion system	The simulation of all components of the propulsion system is carried out close to reality and considers all relevant influences.	The propulsion system has to be tested by acceleration and stopping manoeuvres during which the performance of the engine (in terms of reaction to throttle) and craft (in terms of maximum speed and time behaviour) can be observed.	x	x
20.	Control devices	The control device behaves close to reality regarding the rudder rate of turn and considers the most important influences.	To test the quality of the simulation of control devices, different investigations can be carried out. Limitations are given where it is not possible to evaluate the behaviour without protocols of state variables. — Reaction: The control device is	x	x

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			used in forward and backward motion. It is observed if changes of the craft's direction are initiated. — Rudder rate of turn: The control device is used and the rate of turn is observed on the display. It can be measured if the rate is realistic.		
21.	Shallow water effects	The effect of limited water depth on the power demand	Two types of tests are proposed which allow judging	x	

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		and the manoeuvring behaviour is modelled correctly in terms of quality.	the quality regarding the consideration of the shallow water influence: Running straight ahead: on different water depths the achieved maximum speed is measured, standardised with the speed on deep water and plotted versus the parameter draught by water depth (T/h). The comparison with existing data from model tests gives information about the quality of the shallow water influence in the simulation. Turning circle: by running a craft at constant power and a rudder angle of 20° on lateral unrestricted water, the values of speed, drift		

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			angle, rate of turn and turning circle diameter of a stationary turning craft can be recorded on stepwise reduced water depth. Plotting this date versus T/h allows determining how drift angle, rate of turn, speed and the diameter change with the water depth.		
22.	Influence of current	At least two current measuring points on the craft exist so that the current yaw moment can be calculated.	Tests are planned to check the existence of the performance characteristic and its consideration in the simulation: — An own craft without propulsion is put into a river with existing current. It is observed	x	x

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			whether the craft is taken by the current. Besides, it is checked whether it is accelerated up to the current speed. If the current follows the river direction, it will be checked further whether the craft slightly rotates. — A trial with the port entrance from a river with current shows, to		

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			what extent the simulator realistically calculates a yawing moment generated by the inhomogeneous current.		
23.	Influence of wind	The wind influence generates forces in the horizontal plane according to the actual wind speed and direction. The wind also generates yaw and roll moments.	To check the quality level of the wind influence, different tests can be carried out. To be able to easily detect these effects, relatively high wind speeds are to be chosen. Execute the test as follows: conduct a test for both head-wind and side-wind in two different wind speeds in an area with no influence but wind. Start the wind and notice the behaviour. Stop the wind and notice the behaviour again. Start	x	

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			with a non-moving craft.		
24.	Bank effect	The lateral force and yaw moment tend to change with distance to the bank and speed in a proper manner.	For checking the bank effect in the simulator an exercise area is needed which provides an embankment or wall on one side. The following tests have to be carried out: — The craft is running parallel along the wall. It is checked, whether the straight motion is affected and if the craft is attracted by the wall and if the bow turned away	x	

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			from it. — The distance to the bank or wall and the speed of the craft are varied and it is observed how the effects change.		
25.	Craft-craft interaction	Craft are interacting with each other and realistic effects are computed.	For an entire check of the craft-craft interaction an exercise with two own craft shall be started on the simulator in a lateral unrestricted water. If this is not possible, the test may also be carried out using a traffic craft as the other craft. For a good assessment of the results, the craft shall start in parallel	x	

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			courses at a relatively small lateral distance. — For both overtaking and encountering it will be checked to which extent the own craft shows attraction and rotation. — The water depth is reduced. It shall be checked, if the interaction effects increase. — The distance between the craft shall be increased to find out, if		

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			the effects decrease. — The speed of the other craft shall be increased. The functional relation between passing craft effect and encountering speed shall be checked.		
26.	Squat	Both dynamic sinkage and trim are modelled in dependency of the speed, water depth and draught.	This feature is best tested in an area with lateral unrestricted water and constant water depth. — A trial run has to show if the feature ‘squat’ can be checked using echo sounders.	x	

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			— Different values for the under keel clearance at bow and stern show whether the craft trims. — With increasing speed the functional relation between squat (difference between under keel clearance during standstill and motion) and craft speed is checked. — It is tested whether the squat increases at constant speed but decreasing	

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			water depth.		
27.	Canal effect	Consideration of the current back flow. The back flow is not linear to the craft speed.	Back flow is a physical effect brought in the simulator as a resisting force executed on the craft. To test this, a craft is put in a narrow canal, the craft runs steady with constant power. The speed is then measured. The power is increased and the speed is measured. The test is repeated in open water with the same constant power (two levels) is applied. The expected effect is: — The speed in the narrow canal is less than in open waters at the same	x	

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			power setting. — On a larger power setting, the speed difference is bigger than on a lower power setting.		
28.	Lock effect	In a lock the craft experiences the same effects as in a canal. The lock causes an additional effect due to a displacement flow caused by the craft with a large blockage factor entering the lock (the piston effect).	The test for the canal effect shows the back flow. This test does not have to be repeated. The piston effect can be demonstrated by: — Take the craft into the lock at a relatively high speed. The craft shall experience additional resistance after entering the lock (slow	x	

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			down). When the propulsion is stopped the reversing forces shall still be available and the craft shall reverse slightly. — Start in the lock, set propulsion to a fixed setting. The craft will leave the lock, experience a resisting force due to the piston effect. After leaving the lock (the craft	

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			free of the lock) the resisting force shall stop, shown by a sudden increase in speed that can be noted.		
29.	Grounding	Grounding slows the craft down, it can be heard by a sound but does not lead in all cases to the craft stopping. Grounding is notified to the operator.	An exercise area with an even as well as a softly rising bottom is necessary for the check of grounding. Here, the existence of suitable depth information in the simulator itself is addressed and not the representation in the visualisation system. When grounding on a beach it has to be tested whether the craft really stops, and if so whether it stops abruptly	x	

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			or it slows down. During grounding, the change of the horizontal plane of the craft has to be checked with the visualisation system. Running over a flat bottom at extreme shallow water, it has to be tested whether the craft grounds due to squat while the speed is increased continuously. For all groundings it has to be checked, if this incident is accompanied by a sound.		
30.	Grounding Collision craft-shore Collision craft-craft Collision craft-bridge	A grounding, a collision craft-shore, craft-craft, craft or bridge are notified in the simulation to the candidate and the operator.	Visual inspection		x
31.	Collision craft-shore	Collisions craft-shore are notified in the simulation	Only for exercise areas with different objects on	x	

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		at least by a sound. The simulation slows the craft down. The calculation of the collision is carried out using a 2-dimensional shape of the craft.	the shore the simulation of the collision craft-shore can be tested. By sailing against different objects it can be tested whether the simulator can detect these and react on them. For different objects it shall be tested whether there are certain types, for which no collision reaction occurs. The sound for the collision can be tested with the audio system of the simulator, if available. The observation of the collision in the visualisation system shows whether the collision occurs abruptly or if a crumble zone is simulated. A collision with a flat		

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			angle at low speed can show whether an elastic push is computed.		
32.	Collision craft-craft	Collisions craft –craft are notified in the simulation at least by a sound. The simulation slows the craft down. The calculation of the collision is carried out using a 2-dimensional shape of the craft.	Under the precondition that it makes no difference for the own craft whether the other craft it is colliding with is another own craft or a traffic craft, different collisions can be carried out. It is checked which reaction occurs on the simulator during a craft-craft collision for the own craft and whether a sound can be noticed. In the instructor station, it is checked with sufficient magnification, if the outlines of the craft are used for the collision detection. It is tested, if the collision occurs exactly at	x	

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			that moment, when the outlines touch each other. It is checked, if there is a precise detection of the collision also for various craft with different shapes.		
33.	Collision craft-bridge	Collisions craft-bridge are detected using a static height value (corresponding to a lowered wheelhouse, lowered mast). Collisions are notified in the simulation at least by a sound. The simulation slows the craft down.	To examine this achievement, a bridge must exist in the exercise area and Inland Electronical Navigation Chart is used. It is checked whether during the passage of a bridge with not enough clearance a collision occurs and what is the outcome for the further simulation. It is checked whether a safe passage is possible with sufficient reduction of the water level or increase of the draught. This shall also be	x	

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			checked in the visualisation system. Different runs are necessary to check the collision point on the ship, if only one exists. In this case it can also be localised whether the bridge causes a collision in the centre line or in the outer boundaries.		
34.	Lifting wheelhouse	Collision height and eye point shall be adaptable to the position of the bridge. A continuous motion of the lifting wheelhouse shall be available.	A precondition for testing this performance feature is the availability of a typical inland waterway craft, e.g. a craft of 110 m length. The basic availability of this functionality can be checked by the presence of an operating device for the change of the bridge position. The function can be tested on the bridge	x	

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			and it shall be checked, whether arbitrary positions may be chosen and whether the motion is abrupt or with realistic speed. By positioning another own craft in the vicinity it may be tested whether this functionality is also available for other craft in the visualisation system. It can be observed whether also navigational lights and day signs move according to the motion of the lifting wheelhouse of the second own craft in the visualisation system.		
35.	Ropes	The visualisation system shall display the dynamics of both the craft and the rope (e.g. slack, elasticity,	In an exercise area with a quay wall, mooring with a rope shall be tested. When using the rope, it shall be	x	

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		weight and breaking and connections to the bollard points).	checked whether the rope connects to certain bollard points. The breaking of a rope shall be checked by trying to stop the craft with a rope from full speed The slack of a rope shall be checked by decreasing force and distance.		
36.	Anchors	Anchors can be set and hauled in. The water depth and the dynamics of the chain are considered.	In an exercise area with restricted water depth and an own craft with one or several anchors, the anchor function can be examined. It is reasonable, if a constant current with a variable velocity is available. Setting and hauling in of the anchor is only possible if appropriate operating elements exist. It has also to be checked whether	x	

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			there are instruments indicating the chain length. It is checked whether the speeds differ while setting and hauling in. Besides, it has to be also checked whether a suitable sound can be heard. By variation of the water depth it has to be checked, if the water depth has an influence on the anchor function. At low current velocity, it has to be tested whether the craft is oscillating and coming to halt after anchoring. At continuous increase of the current, it has to be tested, if the anchor holds the craft. If a single anchor does not hold, it has to be checked, if the craft halts		

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			with two anchors when two anchors are used.		
37.	Towing (operation between two craft)	While towing, the dynamics of both craft and the rope connection are considered.	The exercise area for checking of the towing function can be an open sea area. Besides the towing or towed own craft, another craft (own craft or traffic craft) is necessary. The basic condition for towing can be tested by bringing out a towing line between an own craft and the other craft. If this is not possible, it has to be checked whether at least an alternative method for defining a force coming from a virtual tug is given. It is checked whether the other craft, used as towing assistance, can accelerate the towed	x	

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			own craft and also initiate a yaw motion by a lateral pull. It is checked whether the towing own craft can move the other craft by suitable manoeuvres and stop it and whether the other craft also can be brought into rotation by a lateral pull.		
Traffic craft					
38.	Quantity of traffic craft	A minimum of ten traffic craft shall be available.	Test has to show if the required quantity can be inserted in an exercise.	x	x
39.	Control of traffic craft	The traffic craft can follow routes with change of course and speed in a realistic way.	The availability of control functions has to be checked by creating a new exercise including traffic craft.	x	x
40.	Motion behaviour	Reasonably smooth motion behaviour.	The test procedure on control of traffic craft applies.	x	x
41.	Influence of the wind	The traffic craft reacts to a given wind by showing a drift angle.	Wind applied to an exercise has to show a drift angle on the traffic craft	x	

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			changing with the speed and the direction of the wind.		
42.	Influence of the current	The traffic craft reacts to a given current by showing a drift angle.	Current applied to an exercise has to show a drift angle on the traffic craft changing with the speed and the direction of the current.	x	x
43.	Image section and size	The visualisation system allows a view around the horizon (360 degrees). The horizontal field of view may be obtained by a fixed view of at least 210 degrees and additional switchable view(s) for the rest of the horizon. The vertical view allows the view down to the water and up to the sky as it would be seen from the regular steering position in the wheelhouse.	Visual inspection of the running simulator.	x	
44.	Resolution by frame	The resolution	Resolution has to be	x	

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		reaches the resolution of the human eye. The frame rate (ideally > 50 fps, at least showing a realistic smooth picture) reveals no jerking.	checked by visual inspection.		
45.	Further detailing and display quality	The level of detail of the display system goes beyond a simplified representation. It shows a good view of the navigational area under all circumstances.	The visual model has to be checked by visual inspection.	x	
46.	Water surface	Craft induced waves depend on the craft's velocity. Water depth is considered. Wind induced waves comply with wind direction and speed.	The visual inspection has to show whether the craft induced waves change with the craft's speed and whether the wind induced waves change with wind direction and speed.	x	
47.	Sun, moon, celestial bodies	Sun and moon follow a 24-hour interval. The positions do not exactly correspond	The visual inspection has to show whether the sun, moon and celestial bodies in	x	

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		to place and date of the simulation. The night sky may consist of arbitrary stars.	day, night and twilight situations can be modified		
48.	Weather	Stationary high cloud layers are represented. Furthermore rainfall, haze and fog can be displayed.	The visual inspection shows the required level of detail.	x	
49.	Ambient noise	Engine noises are reproduced in a realistic manner.	The engine noises have to be tested in quiet weather and sea conditions by assessing the noises for all engine speeds. It has to be determined if the engine sound is audible and if volume level and sound are appropriate.	x	x
50.	External noise sources (e.g. engine noises, audible warning signals and anchor).	Single sound signals are played in a realistic way, but cannot be located acoustically.	As a first step on the wheelhouse of the stationary own craft, all available sound signals are activated one after the other. It is assessed whether the sound signals are realistic	x	

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			regarding sound and volume levels. In a second step, the same sound signals are activated on another craft, whereas the distance to the craft is modified. It has to be examined, if the correct signal sounds and if the volume levels are played in the right way. All operable auxiliary power units (e. g. anchors) on craft's wheelhouse are activated separately. It has to be verified whether the operating status is acoustically perceivable.		
51.	External noise (sound signals)	Sound signals from target craft shall be hearable.	During an exercise a sound signal from a target craft shall be given.		x
52.	Internal acoustic information	Acoustic signals from bridge devices sound realistically,	All acoustic signals of all available wheelhouse devices are	x	

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		but are played by speakers located on the console of the simulator.	activated one after the other. It is tested whether the signals are emitted by the devices themselves or by the speakers of the simulator and how far they sound realistic.		
53.	Listening	The operator is able to listen to all noises from the craft's wheelhouse.	Within the scope of a simulation it has to be tested whether sounds from craft's wheelhouse are transmitted clearly and understandably and if the volume level is adjustable.	x	
54.	Recording	Sounds from craft's wheelhouse are recorded synchronously with the simulation.	An exercise is executed including radio communication and sounds. Replay must show a proper audible recording synchronously with the replay of the simulation.	x	
55.	Radar conformity	The angular accuracy for horizontal	Conformity 'vertical': simulation	x	x

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		bearing shall be in accordance with European Technical Specification (ETSI) EN 302 194. Effects related to the vertically limited opening angle are identifiable e.g. when passing bridges.	of bridge passage with consideration of: — the height of the antenna above the water surface at current draught, — the radiation angle in accordance with the radar lobe and the trim of the craft, — the height of the bridge between lower edge of the bridge and the water surface.		
56.	Resolution	The radar simulation shall create a	Proper resolution has to be	x	x

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		realistic radar image. The radar simulation shall meet the requirements of ETSI EN 302 194 [1].	demonstrated at a distance of 1 200 m: two objects with an azimuthal distance of 30 m have to be identified as two separate objects. Two objects at a distance of 1 200 m in the same direction with a distance of 15 m between them have to be identified as two different objects.		
57.	Shadowing caused by own or other craft	Shadowing corresponds to the trigonometric relations, but do not consider changes of the dynamic position of craft.	The shadowing caused by own craft has to be tested by approaching a buoy and identifying the distance when the buoy is hidden by the craft's bow. This distance shall be realistic. The shadowing caused by other craft has to be tested by putting two craft in the same	x	x

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			direction. When putting a smaller craft behind a larger craft, the smaller craft shall not appear on radar display.		
58.	Sea and rain clutter	The adjustment of filters and their effect correspond to the magnitude of real approved devices.	An assessment is done by switching on and adjusting the filters.	x	x
59.	False echoes	False echoes are generated. Additionally, the frequency of multiple echoes changes with the distance in a realistic manner.	In an exercise with multiple target craft, false echoes shall be visible. During the test, the observer has to look for interference and multiple echoes.	x	x
60.	Water depth	The bottom topography is described in detail by bathymetric contours and soundings or in any other form in a high resolution, as far as data is available.	When sailing through the area to be inspected, it has to be checked whether the echo sounder shows realistic values.	x	
61.	Current	The current can be arbitrary defined by	The effect of current has to be tested by letting	x	x

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		at least 2-dimensional vector fields with a high resolution adapted to the craft size and the area.	an own craft drifting on a river. The craft shall move with the current in a realistic way.		
62.	Tide	Tidal data is given in a coarse spatial or temporal resolution, or both.	The effect of the tide on floating objects can be evaluated by simulating a preferable small floating object without any propulsion or other forces (e.g. from wind or ropes). By changing the time of day, it can be checked whether the tidal current and water level are time dependent and realistic. The water level can be directly seen at the echo sounder, and can be recorded for a full day to be compared with measured or calculated data.	x	

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63.	Wind	Fluctuations and wind vector fields can be defined and allow local modification.	If an anemometer is 'installed' on board, the instrument on the bridge shall display the relative wind speed and direction. The influence of different wind fields on the craft dynamics has to be tested.	x	
64.	2D/3D models of stationary objects	2D replacements of objects are only allowed for objects far away and are not recognised.	While a craft is moving in the whole simulation area that has to be validated, fixed objects are observed. It can be found, at which distance and in which way the level of detail is reduced and whether 2D-models are used.	x	
65.	Level of detail of stationary objects	A good level of detail can let appear realistic objects, although simplifications are recognisable in shape and surface.	The training area to be assessed will be loaded and an own craft is set. It is first necessary to examine whether all navigationally important	x	

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			objects are identified. The scenery must at first glance appear realistic.		
66.	Day/night models of moveable objects	In the darkness, any object can be illuminated. Navigationally important light sources can emit light at predetermined characteristics.	The training area to be assessed will be loaded and an own craft is set. Simulation time is set to midnight. It has to be tested whether all navigationally important objects are illuminated in the simulation as in reality. Furthermore it has to be tested whether other objects are illuminated. If the simulator software has this feature, the instructor switches the lighting of the intended items on and off.	x	
67.	2D/3D models of moveable objects	Two-dimensional objects are only used in the background (large distance)	The training area to be assessed is loaded and an own craft selected. The training area is navigated	x	

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		so that they are hardly apparent. Otherwise 3D-models are taken.	completely; at the same time the available moveable objects are used, observed and evaluated to determine whether they have flat surfaces turning to the observer.		
68.	Level of detail	In case of an improved level of detail, realistic objects are presented, though forms and surfaces appear in a simplified way.	An own craft runs within an arbitrarily selected operating area. Assessable moving objects are used. They shall appear in a realistic way.	x	
69.	Setting of lights and day signals	The lights and signal shown can be switched individually, i.e. all the lights and signals are separately stored in the database and are positioned according to the requirements of real craft and according to the applicable regulation for the craft used.	In close proximity to a traffic craft an own craft is used in any training area. As far as possible, the operator sets all kinds of day signals and traffic lights aboard the traffic craft. If the simulator allows, a second own craft is used instead of the traffic	x	

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			craft. On the second own craft all kinds of light and day signals are also set. At the steering station of the first own craft it will be checked which light and day signals are visible on both other craft.		
70.	Day/night models	Light sources can flash according to certain characteristics.	An own craft navigates within an operating area. Simulation time is set to 24:00 h. All assessable moving objects are used. As far as possible, the operator switches on all available light sources installed at the objects for a visual inspection.	x	
71.	Radar reflectivity	The echo in the radar picture shall be realistic and dependent of the viewing angle.	It shall be checked, if reflecting objects show a realistic echo.	x	x

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72.	Echoes caused by waves and precipitation	Sea state echoes are stored for typical wave pattern also covering the range of sea state levels. Echoes by precipitation are shown in a realistic manner.	Sea state echoes have to be tested by introducing different wave heights and directions. Precipitation echoes are checked.	x	x
73.	Waves	Sea state and wave direction can be adjusted; the craft moves realistically.	It has to be tested, if the motion of the craft varies according to the sea state. Wave directions and height have to be visible.	x	
74.	Precipitation	All weather conditions (restriction of visibility, precipitation with the exception of lightning and cloud formation) are available resulting in a coherent picture.	A visual inspection shall be carried out to check whether the visibility may be reduced,.	x	
75.	Chart display	The Inland ECDIS in information mode has to meet the requirements of the most recent standard published by the European	It has to be checked, if the ECDIS software is certified and Inland Electronical Navigation Chart is used.	x	

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		Union or the Central Commission for Navigation of the Rhine (Commission Implementing Regulation (EU) No 909/2013 or CCNR Inland ECDIS edition 2.3 or its updated edition).			
76.	Measuring units	The simulator uses units for European inland waterway navigation (km, km/h).	The displayed units have to be evaluated.	x	x
77.	Language options	Language of examination and/or English shall apply.	Language of the instruments has to be checked.	x	x
78.	Quantity of exercises	There shall be a possibility to create, store and run various exercises, which shall be manipulable while running.	Different operations shall be performed.	x	x
79.	Quantity of own craft	For each bridge a different own craft can be loaded.	Demonstration of separate exercises on multiple bridges (if applicable).	x	
80.	Storage data	All simulation	A simulation run is started	x	x

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		values which are necessary to replay the simulation, including video and sound of the performance of the applicant have to be stored.	and the storage carried out. The simulation is reloaded and reviewed in order to determine whether all relevant data is available from the recorded simulation run.		
81.	Storage of displayed examination	There must be an opportunity for replay in the operator room or at a debriefing station. Radio communication shall be recordable.	The exercise shall be replayed.	x	x

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II. STANDARDS FOR THE ADMINISTRATIVE PROCEDURE FOR THE APPROVAL OF VESSEL-HANDLING SIMULATORS AND RADAR SIMULATORS

I. **Procedure for the approval of simulators used in examinations referred to in points (a) and (b) of Article 17(3) of Directive (EU) 2017/2397**

1. The entity using simulators to assess competences shall present to the competent authority of the Member State a request for approval

   (a) specifying which assessment of competence the simulator is to be authorised for, i.e. practical examination for obtaining a certificate of qualification as a boatmaster (vessel handing simulator) or practical examination for obtaining a specific authorisation for sailing with the aid of radar (radar simulator), or both;

   (b) indicating that the simulator ensures full compliance with the minimum technical and functional requirements as referred to in the relevant standard or standards for simulators.

2. The competent authority shall ensure that the minimum requirements specified in the standard for the functional and technical requirements of simulators are checked

according to the test procedure for each item. For this exercise, the competent authority shall use experts independent from the entity conducting the training programme. Experts shall document the compliance check for each item. If the test procedures confirm that the requirements are met, the competent authority shall approve the simulator. The approval shall specify which particular assessment of competence the simulator is authorised for.

II. **Notification of the approval and quality standards system**

1. The competent authority for the approval of simulators shall notify the approval of a simulator to the European Commission and any international organisation concerned indicating at least the following:

   (a) assessment of competence the simulator is authorised for, i.e. practical examination for obtaining a certificate of qualification as a boatmaster (vessel handling simulator) or practical examination for obtaining a specific authorisation for sailing with the aid of radar (radar simulator), or both;

   (b) name of the operator of the simulator;

   (c) name of the training programme (if applicable);

   (d) body awarding the certificates of qualification, specific authorisation or practical examination certificates;

   (e) date of the entry into force, revocation or suspension of the approval of the simulator.

2. For the purpose of a quality assessment and assurance system referred to in Article 27 of Directive (EU) 2017/2397, the competent authorities shall keep the requests specified in Section I.1.(a) and documentation specified in Section I.2.

ANNEX IV

STANDARDS FOR MEDICAL FITNESS

MEDICAL FITNESS CRITERIA FOR MEDICAL CONDITIONS (GENERAL FITNESS, VISION AND HEARING)

Introduction

The medical examiner should bear in mind that it is not possible to develop a comprehensive list of fitness criteria covering all possible conditions and the variations in their presentation and prognosis. The principles underlying the approach adopted in the table are often capable of being extrapolated to conditions not covered by it. Decisions on fitness when a medical condition is present depend on careful clinical assessment and analysis, and the following points need to be considered whenever a decision on fitness is taken:

- Medical fitness, comprising of physical and psychological fitness, means not suffering from any disease or disability which makes the person serving on board an inland craft unable to do either of the following:

  a) execute the tasks necessary to operate the craft,

  b) perform assigned duties at any time,

  c) perceive correctly the environment.

- The medical conditions listed are common examples of those that may render crew members unfit. The list can also be used to determine appropriate limitations on fitness. The criteria given can only provide guidance for physicians and shall not replace sound medical judgement.
- The implications for working and living on inland waters vary widely, depending on the natural history of each condition and the scope for treatment. Knowledge about the condition and an assessment of its features in the individual being examined shall be used to reach a decision on fitness.
- Where medical fitness cannot be fully demonstrated, mitigation measures and restrictions may be imposed on the condition of equivalent navigation safety. A list of mitigation measures and restrictions is added to the notes of this text. Where necessary, references to those mitigation measures and restrictions are made in the descriptions of the medical fitness criteria.

The table is laid out as follows:

Column 1: WHO International classification of diseases, 10th revision (ICD-10). Codes are listed as an aid to analysis and, in particular, international compilation of data.

Column 2: The common name of the condition or group of conditions, with a brief statement on its relevance to work on inland waterways.

Column 3: The medical fitness criteria that lead to the decision: incompatibility.

Column 4: The medical fitness criteria that lead to the decision: able to perform assigned duties at any time.

There are two appendices:

Appendix 1 Relevant criteria for vision as meant under diagnostic code H 0059

Appendix 2 Relevant criteria for hearing as meant under diagnostic code H 68-95.

ICD 10diagnostic Codes	Condition*Justification for criteria*	Incompatibility to perform assigned duties at any timeexpected to be temporary (T)expected to be permanent (P)	Able to perform assigned duties at any time
A 00–B99	**INFECTIONS**		
A 00 – 09	**Gastrointestinal infection** *Transmission to others, recurrence*	T – If detected while onshore (current symptoms or awaiting test results on carrier status) or confirmed carrier status until elimination demonstrated	No symptoms affecting safe work
A 15–16	**Pulmonary TB** *Transmission to others, recurrence*	T – Positive screening test or clinical history, until investigated.	Successful completion of a course of treatment

		If infected until treatment stabilised and lack of infectivity confirmed P – Relapse or severe residual damage	
A 50–64	**Sexually transmissible infections** *Acute impairment, recurrence*	T – If detected while onshore: until diagnosis confirmed, treatment initiated and successful completion of a course of treatment. P – Untreatable impairing late complications	No symptoms affecting safe work
B 15	**Hepatitis A** *Transmissible by food or water contamination*	T – Until jaundice resolved or exercise tolerance restored	No symptoms affecting safe work
B 16–19	**Hepatitis B.** *Transmissible by contact with blood or other body fluids. Possibility of permanent liver impairment and liver cancer*	T – Until jaundice resolved or exercise tolerance restored P – Persistent liver impairment with symptoms affecting safe work or with likelihood to complications	No symptoms affecting safe work. Fit with a time limitation of maximum two years
	Hepatitis C*Transmissible by contact with blood or other body fluids. Possibility of permanent liver impairment*	T – Until jaundice resolved or exercise tolerance restored P – Persistent liver impairment with symptoms affecting safe work or with likelihood to complications	No symptoms affecting safe work
B 20–24	**HIV+** *Transmissible by contact with blood or other body fluids. Progression to HIV associated diseases or AIDS*	T – Good awareness of the condition and full compliance with treatment recommendations P – Non-reversible impairing HIV associated diseases. Continuing impairing effects of medication	No symptoms affecting safe work. Fit with a time limitation of maximum two years

A 00–B 99 not listed separately	**Other infection** *Personal impairment, infection of others*	T –In case of serious infection and serious risk of transmission P – If continuing likelihood of repeated impairing or infectious recurrences	No symptoms affecting safe work
C00–48	**CANCERS**		
C 00–48	**Malignant neoplasms** – including lymphoma, leukaemia and related conditions *Recurrence – especially acute complications e.g. harm to self from bleeding*	T – Until investigated, treated and prognosis assessed P – Continuing impairment with symptoms affecting safe work or with high likelihood of recurrence	No symptoms affecting safe work To be confirmed by formal assessment of a specialist
D 50–89	**BLOOD DISORDERS**		
D 50 –59	**Anaemia/ Haemoglobinopathies** *Reduced exercise tolerance. Episodic red cell anomalies*	T – Until haemoglobin normal or stable P – Severe recurrent or continuing anaemia or impairing symptoms from red cell breakdown that are untreatable	No symptoms affecting safe work
D 73	**Splenectomy** (history of surgery) *Increased susceptibility to certain infections*	T – Until completion of clinical treatment and exercise tolerance restored	No symptoms affecting safe work
D 50 –89 not listed separately	**Other diseases of the blood and blood-forming organs** *Varied – recurrence of abnormal bleeding and also possibly reduced exercise tolerance or low resistance to infections*	T – While under investigation P – Chronic coagulation disorders	Case-by-case assessment
E 00–90	**ENDOCRINE AND METABOLIC**		
E 10	**Diabetes** **– insulin using**	T – If lack of:	Case-by-case assessment with

	Acute impairment from hypoglycaemia. Complications from loss of blood glucose control. Increased likelihood of visual, neurological and cardiac problems	1. good control; 2. compliance with treatment or 3. hypoglycaemia awareness P – If poorly controlled or not compliant with treatment. History of hypoglycaemia or loss of hypoglycaemia awareness. Impairing complications of diabetes	a maximum time limitation of 5 years. If evidence of good control, full compliance with treatment recommendations and good hypoglycaemia awareness. Restriction 04*** may be indicated
E 11–14	**Diabetes – non-insulin treated**. On other medication *Progression to insulin use, increased likelihood of visual, neurological and cardiac problems*	T – If lack of: 1. good control, 2. compliance with treatment or 3. hypoglycaemia awareness	When stabilised, in the absence of impairing complications: fit with a time limitation of maximum 5 years
	Diabetes – non-insulin; treated by diet alone *Progression to insulin use, increased likelihood of visual, neurological and cardiac problems*	T – If lack of: 1. good control, 2. compliance with treatment or 3. hypoglycaemia awareness	When stabilised, in the absence of impairing complications: fit with a time limitation of maximum 5 years
E 65–68	**Obesity/abnormal body mass**— high or low *Accident to self, reduced mobility and exercise tolerance for routine and emergency duties. Increased likelihood of diabetes, arterial disease and arthritis*	T – If safety critical duties cannot be performed, capability or exercise test performance is poor, Body Mass Index (BMI) ≥ 40 (obesity level 3) P – Safety critical duties cannot be performed; capability or exercise test performance is poor with failure to achieve improvements	Able to meet routine and emergency capabilities for assigned safety critical duties. Restrictions 07*** or/and 09*** may be indicated

E 00–90 not listed separately	**Other endocrine and metabolic disease (**thyroid, adrenal including Addison's disease, pituitary, ovaries, testes) *Likelihood of recurrence or complications*	T – Until investigated, good control and compliance with treatment. Until one year after initial diagnosis or relapse in which a regular review has taken place P – If continuing impairment, need for frequent adjustment of medication or increased likelihood of major complications	Case-by-case assessment: if medication stable and surveillance of conditions infrequent, no impairment and very low likelihood of complications
F 00–99	**MENTAL, COGNITIVE AND BEHAVIOURAL DISORDERS**		
F10	**Alcohol abuse** (dependency) *Recurrence, accidents, erratic behaviour/safety performance*	T – Until investigated, good control and compliance with treatment. Until one year after initial diagnosis or relapse in which a regular review has taken place P – If persistent or there is co-morbidity, likely to progress or recur while at work	For three years in a row: fit with a time limitation of one year, with restrictions 04*** and 05***. Thereafter: fit for a period of three years with restrictions 04*** and 05***. Thereafter: fit without restrictions for consecutive periods of two, three and five years, without relapse and without co-morbidity, if a blood test at the end of each period shows no problems
F 11–19	**Drug dependence/ persistent substance abuse,** includes both illicit drug use and dependence on prescribed medications Recurrence, accidents, erratic behaviour/safety performance	T – Until investigated, good control and compliance with treatment. Until one year after initial diagnosis or relapse in which a regular review has taken place P – If persistent or there is co-morbidity,	For three years in a row: fit with a time limitation of one year, with restrictions 04*** and 05***. Thereafter: fit for a period of three years with restrictions 04*** and 05***. Thereafter: fit without restrictions for consecutive

		likely to progress or recur while at work	periods of two, three and five years, without relapse and without co-morbidity, if a blood test at the end of each period shows no problems
F 20-31	**Psychosis** (acute) –whether organic, schizophrenic or other category listed in the ICD. Bipolar (manic depressive disorders) Recurrence leading to changes to perception/cognition, accidents, erratic and unsafe behaviour	Following single episode with provoking factors: T – Until investigated, good control and compliance with treatment. Until three months after initial diagnosis	If the deck crew member has insight, is compliant with treatment and has no adverse effects from medication: fit with restriction 04***. Restriction 05*** may be indicated. Fit without restriction: one year after episode provided provoking factors can and will always be avoided Time limitation: first two years, six months. Next five years, one year
		Following single episode without provoking factors or more than one episode with or without provoking factors: T – Until investigated, good control and compliance with treatment. Until two years since last episode. P –More than one episode or continuing likelihood of recurrence. Criteria for fitness with or without restrictions are not met	If there has been no relapse and no use of medication for a period of two years: fit, if a medical specialist has determined that the cause can be unequivocally identified as one which is transient and a relapse is very unlikely
F 32–38	**Mood/affective disorders**. Severe anxiety state, depression, or	T – While acute, under investigation or if impairing symptoms or side	After full recovery and after full consideration of the individual case. A fit

	any other mental disorder likely to impair performance *Recurrence, reduced performance, especially in emergencies*	effects of medication present. P – Persistent or recurrent impairing symptoms	assessment may be indicated depending on the characteristics and gravity of the mood disorder. Time limitation: first two years, six months. Restrictions 04*** and/or 07*** may be indicated. Next five years, one year
	Mood/affective disorders. Minor or reactive symptoms of anxiety/depression. *Recurrence, reduced performance, especially in emergencies*	T – Until symptom free, and free from medication P – Persistent or recurrent impairing symptoms	If free from impairing symptoms or impairing side effects from medication. Restrictions 04*** and/or 07*** may be indicate.
F 00–99 not listed separately	**Other disorders** e.g. disorders of personality, attention (ADHD), development (e.g. autism) Impairment of performance and reliability, and impact on relationships	P – If considered to have safety-critical consequences	No anticipated adverse effects while at work. Incidents during previous periods of service. Restrictions 04*** and/or 07*** may be indicated
G 00–99	**DISEASE OF THE NERVOUS SYSTEM**		
G 40–41	**Single seizure** *Harm to craft, others and self from seizures*	Single seizure T – While under investigation and for one year after seizure	One year after seizure and on stable medication: fit with restriction 04*** Fit without restrictions: one year after seizure and one year after end of treatment
	Epilepsy – no provoking factors (*multiple seizures)* *Harm to craft, others and self from seizures*	T – While under investigation and for two years after last seizure P – Recurrent seizures, not	Off medication or on stable medication with good compliance: fit with restriction 04***

		controlled by medication	Fit without restrictions when seizure-free and without medication for at least 10 years
	Epilepsy – provoked by alcohol, medication, head injury *(multiple seizures) Harm to craft, others and self from seizures*	T – While under investigation and for two years after last seizure P – Recurrent fits, not controlled by medication	Off medication or on stable medication with good compliance: fit with restriction 04*** Fit without restrictions when seizure free and without medication for at least five years
G 43	**Migraine** (frequent attacks causing incapacity) *Likelihood of disabling recurrences*	P – Frequent attacks leading to incapacity	No anticipated incapacitating adverse effects while at work. No incidents during previous periods of service
G 47	**Sleep apnoea** *Fatigue and* episodes *of sleep while working*	T – Until treatment started and successful for three months P – Treatment unsuccessful or not being complied with	Once treatment demonstrably working effectively for three months. Six-monthly assessments of compliance. Restriction 05*** may be indicated
	Narcolepsy *Fatigue and* episodes *of sleep while working*	T – Until controlled by treatment for at least two years P – Treatment unsuccessful or not being complied with	If specialist confirms full control of treatment for at least two years: fit with restriction 04***
G 00–99 not listed separately	**Other organic nervous disease** e.g. multiple sclerosis, Parkinson's disease. *Recurrence/ progres sion. Limitations on muscular power, balance, co-ordination and mobility*	T – Until investigated, good control and compliance with treatment P – If limitations affect safe working or unable to meet physical capability requirements	Case-by-case assessment based on job and emergency requirements, informed by neurological-psychiatric specialist advice
R 55	**Syncope and other disturbances of consciousness** *Recurrence*	T – Until investigated to determine cause and to demonstrate	

	causing injury or loss of control	control of any underlying condition. Event is:	
		(a) Simple faint/ idiopathic syncope	Case-by-case assessment. Restriction 04*** may be indicated
		(b) Not a simple faint/idiopathic syncope. Unexplained disturbance: not recurrent and without any detected underlying cardiac, metabolic or neurological cause T – Four weeks	Case-by-case assessment. Restriction 04*** may be indicated.
		(c) Disturbance: recurrent or with possible underlying cardiac, metabolic or neurological cause T – With possible underlying cause that is not identified or treatable: for six months after event if no recurrences T – With possible underlying cause or cause found and treated for one month after successful treatment (d) Disturbance of consciousness with features indicating a seizure. Go to G 40–41 P – For all of above if recurrent incidents persist despite full investigation and appropriate treatment	
T 90	**Intracranial surgery/injury,** including treatment of vascular anomalies or serious head	T – For one year or longer until seizure likelihood low* based on advice from specialist	After at least one year, if seizure likelihood low* and no impairment from underlying condition

	injury with brain damage. *Harm to ship, others and self from seizures. Defects in cognitive, sensory or motor function. Recurrence or complications of underlying condition*	P – Continuing impairment from underlying condition or injury or recurrent seizures	or injury: fit with restriction 04*** Fit without restrictions when no impairment from underlying condition or injury, not on anti epilepsy medication. Seizure likelihood very low*
H00-99	**DISEASES OF THE EYES AND EARS**		
H00-59	**Eye disorders**: progressive or recurrent (e.g. glaucoma, maculopathy, diabetic retinopathy, retinitis pigmentosa, keratoconus, diplopia, blepharospasm, uveitis, corneal ulceration, retinal detachment) *Future inability to meet vision criteria, risk of recurrence*	T – Temporary inability to meet relevant vision criteria (see Appendix 1) and low likelihood of subsequent deterioration or impairing recurrence once treated or recovered P – Inability to meet relevant vision criteria (see Appendix 1) or if treated increased likelihood of subsequent deterioration or impairing recurrence	Very low likelihood of recurrence. Progression to a level where vision criteria are not met during period of certificate is very unlikely
H65-67	**Otitis – external or media** Recurrence, risk as infection source in food handlers, problems using hearing protection	T –If symptoms affecting safe work P — If chronic discharge from ear in food handler	Effective treatment and no likelihood of recurrence
H68-95	**Ear disorders**: progressive (e.g. otosclerosis)	T – Temporary inability to meet relevant hearing criteria (see Appendix 2) and low likelihood of subsequent deterioration or impairing recurrence once treated or recovered	Very low recurrence rate*. Progression to a level where hearing criteria are not met during period of certificate is very unlikely

		P – Inability to meet relevant hearing criteria (see Appendix 2) or if treated increased likelihood or subsequent deterioration or impairing recurrence	
H81	**Meniere's disease** and other forms of chronic or recurrent disabling vertigo *Inability to balance causing loss of mobility and nausea*	T – During acute phase P – Frequent attacks leading to incapacity	Low likelihood* of impairing effects while at work
I00-99	**CARDIO-VASCULAR SYSTEM**		
I 05-08 I 34-39	**Congenital and valve disease of heart** (including surgery for these conditions). Heart murmurs not previously investigated *Likelihood of progression, limitations on exercise*	T – Until investigated and, if required, successfully treated P – If exercise tolerance limited or episodes of incapacity occur or if on anticoagulants or if permanent high likelihood of impairing event	Case-by-case assessment based on cardiologic advice
I 10-15	**Hypertension** Increased likelihood of ischemic heart disease, eye and kidney damage and stroke. Possibility of acute hypertensive episode	T – Normally if > 160 systolic or > 100 diastolic mm Hg until investigated and if required successfully treated P – If persistently > 160 systolic or > 100 diastolic mm Hg with or without treatment	If treated and free from impairing effects from condition or medication
I 20–25	**Cardiac event**, i.e. myocardial infarction, ECG evidence of past myocardial infarction or newly recognised left bundle branch block, angina, cardiac arrest,	T – For three months after initial investigation and treatment, longer if symptoms not resolved and in case of increased likelihood of	Very low recurrence rate* and fully compliant with risk reduction recommendations and no relevant co-morbidity issue six month certificate

	coronary artery bypass grafting, coronary angioplasty *Sudden loss of capability, exercise limitation. Problems of managing repeat cardiac event at work*	recurrence due to pathological findings P – If criteria for issue of certificate not met and further reduction of likelihood of recurrence improbable	initially and then annual certificate. Low recurrence rate*: fit with restriction 04*** Fit with a time limitation of one year
I 44–49	**Cardiac arrhythmias** and conduction defects (including those with pacemakers and implanted cardioverter defibrillators (ICD)) *Likelihood of impairment from recurrence, sudden loss of capability, exercise limitation Pacemaker/ICD activity maybe affected by strong electric fields*	T – Until investigated, treated and adequacy of treatment confirmed P – If disabling symptoms present or excess likelihood to impairment from recurrence, including ICD implant	Low recurrence rate*: fit with restriction 04*** Fit with a time limitation of one year
I 61–69 G 46	**Ischaemic cerebro-vascular disease** (stroke or transient ischaemic attack) *Increased likelihood of recurrence, sudden loss of capability, mobility limitation. Liable to develop other circulatory disease causing sudden loss of capability*	T – Until investigated, good control and compliance with treatment. Until three months after initial diagnosis P – If residual symptoms interfere with duties or there is significant excess likelihood of recurrence	Case-by-case assessment of fitness for duties; restriction 04*** is indicated. Assessment shall include likelihood of future cardiac events. Able to meet routine and emergency capabilities for assigned safety critical duties Fit with a time limitation of one year
I 73	**Arterial – claudication** Likelihood of other circulatory disease causing sudden loss of capability. Limits to exercise capacity	T – Until assessed P – If incapable of performing duties	Fit with restriction 04*** provided symptoms are minor and do not impair essential duties or if they are resolved by surgery or other treatment. Assess likelihood of future cardiac events. Fit

			with a time limitation of one year
183	**Varicose veins***Possibility of bleeding if injured, skin changes and ulceration*	T – Until treated if impairing symptoms. Post surgery for up to one month	No impairing symptoms or complications
I 80.2–3	**Deep vein thrombosis/ pulmonary embolus***Likelihood of recurrence and of serious pulmonary embolus.* Likelihood *to bleeding from anti-coagulant treatment*	T – Until investigated and treated and normally while on short term anticoagulants P – Consider if recurrent events or on permanent anticoagulants	May be considered fit for work with a low likelihood for injury once stabilised on anticoagulants with regular monitoring of level of coagulation
I 00–99 not listed separately	**Other heart disease**, e.g. cardiomyopathy, pericarditis, heart failure *Likelihood of recurrence, sudden loss of capability, exercise limitation*	T – Until investigated, treated and adequacy of treatment confirmed P – If impairing symptoms or likelihood of impairment from recurrence	Case-by-case assessment based on specialist reports
J 00–99	**RESPIRATORY SYSTEM**		
J 02–04 J 30–39	**Nose, throat and sinus conditions***Impairing for individual. Transmission of infection to food/ other crew in some conditions*	T –Until no symptoms affecting safe work P – If impairing and recurrent	When treatment complete if no factors predisposing to recurrence
J 40–44	**Chronic bronchitis and/or emphysema***Reduced exercise tolerance and impairing symptoms*	T – If acute episode P – If repeated severe recurrences or if general fitness standards cannot be met or if impairing shortness of breath	Consider fitness for emergencies. Able to meet routine and emergency capabilities for assigned safety critical duties. Fit with a time limitation of one year
J 45–46	**Asthma** (detailed assessment with information from specialist in all	T – Until episode resolved, cause investigated (including any	Fit for duty if history of adult asthma**, with good control with inhalers and no

	new entrants) *Unpredictable episodes of severe breathlessness*	occupational link) and effective treatment regime in place In person under age 20 with hospital admission or oral steroid use in last three years P – If foreseeable likelihood of rapid life-threatening asthma attack while at work; or history of uncontrolled asthma i.e. history of multiple hospital admissions	episodes requiring hospital admission or oral steroid use in last two years or history or exercise induced asthma that requires regular treatment
J 93	**Pneumothorax** (spontaneous or traumatic) *Acute impairment from recurrence*	T – Normally for 12 months after initial episode P – After recurrent episodes unless pleurectomy or pleurodesis performed	Normally 12 months after episode or shorter duration as advised by specialist
K 00–99	**DIGESTIVE SYSTEM**		
K 01–06	**Oral health***Acute pain from toothache. Recurrent mouth and gum infection*s	T –Until no symptoms affecting safe work	If teeth and gums (gums alone of edentulous and with well fitting dentures in good repair) appear to be good. No complex prosthesis; or if dental check in last year, with follow-up completed and no problems since
K 25–28	**Peptic ulcer***Recurrence with pain, bleeding or perforation*	T – Until healing or cure by surgery or by control of helicobacteria and on normal diet for three months P – If ulcer persists despite surgery and medication	When cured and on normal diet for three months
K 40–41	**Hernias – inguinal and**	T – Until investigated to confirm no	When satisfactorily treated or when

	femoral*Likelihood of strangulation*	likelihood of strangulation and, if required, treated	surgeon reports that there is no likelihood of strangulation
K 42–43	**Hernias – umbilical, ventral***Instability of abdominal wall on bending and lifting*	Case-by-case assessment depending on severity of symptoms or impairment. Consider implications of regular heavy whole-body physical effort	Case-by-case assessment depending on severity of symptoms or impairment. Consider implications of regular heavy whole-body physical effort
K 44	**Hernias – diaphragmatic (hiatus)** *Reflux of stomach contents and acid causing heartburn, etc.*	Case-by-case assessment based on severity of symptoms when lying down and on any sleep disturbance caused by them	Case-by-case assessment based on severity of symptoms when lying down and on any sleep disturbance caused by them
K 50, 51,57,58, 90	**Non-infectious enteritis, colitis, Crohn's disease, diverticulitis, etc.***Impairment and pain*	T – Until investigated and treated P – If severe or recurrent	Case-by-case specialist assessment. Low likelihood of recurrence
K 60 I 84	**Anal conditions: piles (haemorrhoids), fissures, fistulae** Likelihood *to episode causing pain and limiting activity*	T – If symptoms affecting safe work P – Consider if not treatable or recurrent	Case-by-case assessment
K 70, 72	**Cirrhosis** of liver *Liver failure. Bleeding oesophageal varices*	T – Until fully investigated. P – If severe or complicated by ascites or oesophageal varices	Case-by-case based on specialist assessment. Fit with a time limitation of one year.
K 80–83	**Biliary tract disease** *Biliary colic from gallstones, jaundice, liver failure*	T – Biliary colic until definitively treated P – Advanced liver disease, recurrent or persistent impairing symptoms	Case-by-case specialist assessment. Sudden onset of biliary colic unlikely
K 85–86	**Pancreatitis***Likelihood of recurrence*	T – Until resolved P – If recurrent or alcohol related, unless confirmed abstention	Case-by-case assessment based on specialist reports

Y 83	**Stoma (ileostomy, colostomy)***Impairment if control is lost – need for bags etc. Potential problems during prolonged emergency*	T – Until investigated, good control and compliance with treatment. P – Poorly controlled	Case-by-case assessment
N 00–99	**GENITO-URINARY CONDITIONS**		
N 00, N 17	**Acute nephritis***Renal failure, hypertension*	P – Until resolved	Case-by-case assessment if any residual effects
N 03–05, N 18–19	**Sub-acute or chronic nephritis or nephrosis***Renal failure, hypertension*	T – Until investigated	Case-by-case assessment by specialist based on renal function and likelihood of complications
N 20–23	**Renal or ureteric calculus** *Pain from renal colic*	T –Until investigated to confirm no likelihood of symptoms affecting safe work P – In severe cases of recurrent stone formation	Case-by-case assessment
N 33, N40	**Prostatic enlargement/ urinary obstruction***Acute retention of urine*	T – Until investigated and treated P – If not remediable	Case-by-case assessment
N 70–98	**Gynaecological conditions** – Heavy vaginal bleeding, severe menstrual pain, endometriosis, prolapse of genital organs or other *Impairment from pain or bleeding*	T – If impairing or investigation needed to determine cause and remedy it	Case-by-case assessment if condition is likely to require treatment on voyage or affect working capacity
R 31, 80, 81, 82	**Proteinuria. haematuria, glycosuria**, or other urinary abnormality *Indicator of kidney or other diseases*	T–If initial findings clinically significant P– Serious and non-remediable underlying cause – e.g. impairment of kidney function	Very low likelihood of serious underlying condition

Z 90.5	**Removal of kidney or one non- functioning kidney***Limits to fluid regulation under extreme conditions if remaining kidney not fully functional*	P – Any reduction of function in remaining kidney in new deck crew member. Significant dysfunction in remaining kidney of serving deck crew member	Remaining kidney must be fully functional and not liable to progressive disease, based on renal investigations and specialist report
O 00–99	**PREGNANCY**		
O 00–99	**Pregnancy***Complications, late limitations on mobility. Potential for harm to mother and child in the event of premature delivery at work*	T – Decision to be in accord with national legislation Abnormality of pregnancy requiring high level of surveillance	Uncomplicated pregnancy with no impairing effects: Decisions to be in accord with national practice and legislation
L00–99	**SKIN**		
L 00–08	**Skin infections***Recurrence, transmission to others*	T – If symptoms affecting safe work P – Consider for deck crew members with recurrent problems	Based on nature and severity of infection
L10–99	**Other skin diseases**, e.g. eczema, dermatitis, psoriasis *Recurrence, sometimes occupational cause*	T – If symptoms affecting safe work	Case-by-case decision, restricted as appropriate if aggravated by heat, or substances at work
M00–99	**MUSCULO-SKELETAL DISORDERS**		
M 10–23	**Osteoarthritis**, other joint diseases and subsequent joint replacement Pain and mobility limitation affecting normal or emergency duties. Possibility of infection or dislocation and limited life of replacement joints	T – Full recovery of function and confirmation by formal assessment of a specialist required before return to work after hip or knee replacement P – For advanced and severe cases	Case-by-case assessment. Able to fully meet routine and emergency duty requirements with very low likelihood of worsening such that duties could not be undertaken
M 24.4	**Recurrent instability** of shoulder or knee joints	T – Until sufficient recovery and stability of joint function	Case-by-case assessment of occasional instability

	Sudden limitation of mobility, with pain		
M 54.5	**Back pain** *Pain and mobility limitation affecting normal or emergency duties.* E*xacerbation* of *impairment*	T – In acute stage P – If recurrent or incapacitating	Case-by-case assessment
Y 83.4 Z 97.1	**Limb prosthesis** *Mobility limitation affecting normal or emergency duties*	P – If essential duties cannot be performed	If routine and emergency duties can be performed, limitations specific non- essential activities are allowed. Restriction 03*** may be indicated
	GENERAL		
R 47, F 80	**Speech disorders** Limitations to communication ability	P — Incompatible with reliable performance of routine and emergency duties safely or effectively	No impairment to essential speech communication
T 78 Z 88	**Allergies** (other than allergic dermatitis and asthma) *Likelihood to recurrence and increasing severity of response.* *Reduced ability to perform duties*	T –Until no symptoms affecting safe work P – If life-threatening response reasonably foreseeable	Where response is impairing rather than life-threatening, and effects can be fully controlled by long-term non-steroidal self-medication or by lifestyle modifications that are practicable at work with no safety critical adverse effects
Z 94	**Transplants** – kidney, heart, lung, liver (for prosthetics, i.e. joints, limbs, lenses, hearing aids, heart valves, etc., see condition specific sections) Possibility of rejection. Side effects of medication	T – Until effects of surgery and anti-rejection medication stable P – Case-by-case assessment and confirmation by formal assessment of a specialist	Case-by-case assessment with specialist advice. Fit with a time limitation of one year
Classify by condition	**Progressive conditions** which are currently within criteria, e.g.	T – Until investigated and treated if indicated	Case-by-case assessment, with specialist advice. Such conditions are

	Huntington's chorea (including family history), keratoconus	P – If harmful progression is likely	acceptable if harmful progression before next medical check-up is judged unlikely
Classify by condition	**Conditions not specifically listed**	T – Until investigated and treated if indicated P – If permanently impairing	Use analogy with related conditions as a guide. Consider excess likelihood of sudden incapacity, of recurrence or progression and limitations on performing normal and emergency duties. If in doubt obtain advice or consider restriction and referral to referee.

Appendix 1

Relevant vision criteria as meant under diagnostic code H 0059

Minimum eyesight criteria:

1. *Daytime visual acuity:*

Acuity of both eyes together or of the better eye with or without correction greater than or equal to 0.8. Monocular vision is accepted.

Manifest double vision (motility) which cannot be corrected is not accepted. In the event of monocular vision: normal motility of the good eye.

Restriction 01*** may be indicated.

2. *Eyesight at dawn and dusk:*

To be tested in case of glaucoma retinal disorders or media opacities (e.g. cataract). Contrast sensitivity at 0.032 cd/m^2 in the Absence of glare; test result 1:2.7 or better as tested with the mesotest.

3. *Field of view:*

The horizontal visual field shall be at least 120 degrees. The extension shall be at least 50 degrees left and right and 20 degrees up and down. No defects shall be present within a radius of the central 20 degrees.

At least one eye shall meet the visual acuity standard and have the visual field without pathological scotomata. Formal testing by an eye doctor is mandatory if any abnormalities are found during the initial test or in case of glaucoma or retinal dystrophy.

4. *Colour sense for deck crew members with navigational duties:*

The colour sense is considered to be adequate if the candidate passes the Ishihara 24 plate edition test with a maximum of two mistakes. If the candidate does not pass this test, one of the mentioned approved alternative tests have to be performed. In case of doubt, a test with an anomaloscope shall be performed. The anomaloscope quotient shall be between 0.7 and 1.4 and thus exhibit normal trichromacy.

The approved alternative tests to the Ishihara plates are:

a) Velhagen/Broschmann (result with a maximum of two mistakes);

b) Kuchenbecker-Broschmann (maximum of two mistakes);

c) HRR (minimum result 'mild');

d) TMC (minimum result 'second degree');

e) Holmes Wright B (result with a maximum of 8 errors for small);

f) Farnsworth Panel D 15 test (minimum result: maximum one diametrical crossing in the plot of the arrangement of colours);

g) Colour Assessment and Diagnosis (CAD) test (result with a maximum of four CAD units).

Holders of boatmaster's certificates issued in accordance with Council Directive 96/50/EC[(5)] whose anomaloscope quotient for colour sense is between 0,7 and 3,0 are deemed fit if their certificate has been issued before 1 April 2004.

The use of filter glass optical correction for colour sense, such as tinted contact lenses and glasses, is not allowed.

Appendix 2

Relevant hearing criteria as meant under diagnostic code H 68-95

Minimum hearing criteria

Hearing shall be deemed adequate if the average value of the hearing loss in both ears, with or without hearing aid, does not exceed 40 dB at the frequencies 500, 1000, 2000 and 3000 Hz. If the value of 40 dB is exceeded, hearing shall nonetheless be deemed adequate if a hearing test with an audiometer which complies with ISO 8253-1:2010 or equivalent is passed.

Restriction 02*** may be indicated.

Notes to the table and the Appendices:

** Recurrence rates:*

Where the terms very low and low are used for the excess likelihood of a recurrence. Those are essentially clinical judgements but for some conditions quantitative evidence on the likelihood of recurrence is available. Where that is available, e.g. for seizure and cardiac events, it may indicate the need for additional investigations to determine an individual's excess likelihood of a recurrence. Quantitative recurrence levels approximate to:

very low: recurrence rate less than 2 per cent per year;

low: recurrence rate 2–5 per cent per year.

*** Adult asthma:*

Asthma may persist from childhood or start over the age of 16. There is a wide range of intrinsic and external causes for asthma developing in adult life. In late entry recruits with a history of adult onset asthma the role of specific allergens, including those causing occupational asthma, shall be investigated. Less specific inducers such as cold, exercise and respiratory infection also need to be considered. All can affect fitness for work on inland waters.

Mild intermittent asthma – infrequent episodes of mild wheezing occurring less than once every two weeks, readily and rapidly relieved by beta agonist inhaler.

Mild asthma: frequent episodes of wheezing requiring use of beta agonist inhaler or the introduction of a corticosteroid inhaler. Taking regular inhaled steroids (or steroid/long acting beta agonists) may effectively eliminate symptoms and the need for use of beta agonist treatment.

Exercise-induced asthma: episodes of wheezing and breathlessness provoked by exertion especially in the cold. Episodes may be effectively treated by inhaled steroids (or steroid/long acting beta agonist) or other oral medication.

Moderate asthma: frequent episodes of wheezing despite regular use of inhaled steroid (or steroid/long acting beta agonist) treatment requiring continued use of frequent beta agonist inhaler treatment, or the addition of other medication, occasional requirement for oral steroids.

Severe asthma: frequent episodes of wheeze and breathlessness, frequent hospitalisation, frequent use of oral steroid treatment.
****Mitigation measures and restrictions*

01 Sight correction (glasses or contact lenses, or both) required

02 Hearing aid required

03 Limb prosthesis required

04 No solo duty in the steering house

05 Only during daylight

06 No navigational duties allowed

07 Limited to one craft, named ...

08 Limited area, namely ...

09 Limited task, namely ...

The mitigation measures and restrictions may be combined. They shall be combined if necessary.

(**1**) OJ L 345, 27.12.2017, p. 53.

(**2**) 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).

(**3**) 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).

(**4**) The European Standards laying down Technical Requirements for Inland Navigation vessels are available under https://www.cesni.eu

(**5**) Council Directive 96/50/EC of 23 July 1996 on the harmonization of the conditions for obtaining national boatmasters' certificates for the carriage of goods and passengers by inland waterway in the Community (OJ L 235, 17.9.1996, p. 31).