

# COMPETING

## ***Auditlist LNG ML***

*Elements taking into account when auditing Training Institutes for courses on Liquefied Natural Gas (LNG) experts on Management Level (ML)*



**PROJECT:** COMPETING  
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## Background

The Erasmus+ project COMPETING will develop curricula and lesson materials, as well as a Quality Assurance and Quality Control (QA/QC) system, to ensure the highest level of quality concerning the implementation of future proof IWT education and training throughout the EU. The duration of COMPETING will be from the 1st of January 2019 until the 31st December 2021 and in total there are 15 partners participating on this project.

COMPETING will pave the way for the introduction of competency based future proof education and training for inland navigation crew members throughout the EU, where certificates granted are recognised on a European level, and where greening, automatization and digitalisation as well as communication on a European level are laid down in the education and training programmes.

The COMPETING consortium consists of different categories of stakeholders. Firstly IWT education and training institutes, which have to modify their lesson programmes towards a European wide competency-based recognised education and training programme. Secondly the Social partners (employers and unions) representing the industry and crew members working in the industry. Finally the Competent authorities and Umbrella Organisations as members of the Advisory Board.

It is for the first time, that on a European level, all key stakeholders cooperate to develop a European wide recognized and modern curricula for IWT, in combination with lesson materials as well as a Quality Assurance /Quality Control system (QA/QC).

These achievements will in the end result in the implementation of EU legislation, resulting in a comparable system for recognition of educational programmes and properly qualified crew with the possession of a Union certificate.

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## Audit list

The audit list is a cornerstone of the beforementioned quality control and quality assurance (QC and QA) system for European inland navigation education. This with a view to the implementation of the new EU directive for the harmonization of inland navigation education. This audit list is based upon the CESNI ES-QIN standards.

The audit list has been developed to enable authorities to provide an approved inland navigation training program for education and training institutes and examination boards in their country. This list contains a description of the professional competences, which have been established on the basis of a common understanding and a harmonized system for the qualification of IWT personnel.

To this end, the list describes the competencies, as well as the knowledge, understanding and the skills of which the competence is composed of. The task of the assessor is to compare the ES-QIN competencies with the learning content, which is used by the training institute in question.

For example:

ES-QIN (2019) Competence ML 1. Navigation		Name of Institute <b>XYZ Maritime Institute (NL)</b>	
<b>ML 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)</b>			
Competence	KNOWLEDGE and SKILLS	Competence	Content of curricula
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	<b>Bestuuring</b> <b>Textbook:</b> <b>"Navigatie 1</b> <b>Hoofdstuck 3"</b>	<b>The textbook chapter describes principles of the vessels steering systems and describes the main types of rudder-systems as well as their advantages/disadvantages</b>
Training asset used:	<b>Textbook</b>	Sufficient	
Remarks:	<b>N/A</b>	Yes <b>X</b>	NO



## ***Elements taking into account when auditing Training Institutes for courses on Liquefied Natural Gas (LNG) experts on Management Level (ML)***

### **General Information**

Auditing Authority	
Audited Institute	
Audited training course	

Length of the course (days)	
Maximum number of participants	

Entrance requirements	ES-QIN	Name of Institute

### **Available training assets**

	yes	no
Shiphandling simulators		
Radar simulators		
Training vessels		





Communication lab (Radio)		
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Administrative precondotions linked to the fulfillment of the directive (EU/2017/2397)			
	Yes	No	Remaks
1. Is personal data processsed according to Union law, in particular Regulations (EC) No 45/2001 ( 1 ) and (EU) 2016/679 ( 2 ) of the European Parliament and of the Council and in accordance to the article 24 of the Directive EU/2017/2397?			



2. Are the certificates issued by the training institute and/or the competent authority after the successful completion of the training course in accordance with the rules and regulations for Union certificates, as laid down in the articles 4, 5 and 6 of the Directive EU/2017/2397?			
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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.			
Competence	KNOWLEDGE and SKILLS	Competence	Content of curricula
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.		
Training asset used:		Sufficient	
Remarks:		Yes	NO
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 authorizations 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.		
Training asset used:		Sufficient	
Remarks:		Yes	NO



<b>2. The expert shall be able to be aware of specific points of attention related to LNG, recognise the risks and manage them.</b>			
<b>Competence</b>	<b>KNOWLEDGE and SKILLS</b>	<b>Competence</b>	<b>Content of curricula</b>
1. recognise specific points of attention related to the specific characteristics of LNG;	1. Knowledge of definition, composition and quality attributes of LNG, Safety Data Sheet (SDS): physical properties and characteristics of the product and environmental characteristics.		





	2. Knowledge of the adequate storage temperature, flashpoint, explosion limits and pressure characteristics, critical temperatures, related hazards, atmospheric conditions, cryogenic properties, the behaviour of LNG in air, boil-off and inert gas e.g. nitrogen.		
Training asset used:		Sufficient	
Remarks:		Yes	NO
2. recognise risks and manage them.	1. Knowledge of safety plans, hazards and risk, including knowledge of muster list and its related safety tasks.		
	2. Ability to conduct risks management, to document on-board safety (including safety plan and safety instructions), to assess and control dangerous areas, fire safety and to use personal protective equipment.		
Training asset used:		Sufficient	
Remarks:		Yes	NO



<b>3. The expert shall be able to operate the systems specific to LNG in a safe way.</b>			
<b>Competence</b>	<b>KNOWLEDGE and SKILLS</b>	<b>Competence</b>	<b>Content of curricula</b>



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 <ul style="list-style-type: none"><li>• general configuration and operating manual,</li><li>• LNG bunkering system,</li><li>• spill control equipment,</li><li>• LNG containment system,</li><li>• gas preparation system,</li><li>• LNG pipe system,</li><li>• gas supply system,</li><li>• engine room concept,</li><li>• ventilation system,</li><li>• temperature and pressure (how to read a pressure and temperature distribution chart),</li><li>• valves (in particular, the main gas fuel valve), pressure relief valves,</li><li>• control, surveillance and safety systems, alarms, gas detection and dry breakaway couplings.</li></ul>		
	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		
Training asset used:		Sufficient	
Remarks:		Yes	NO



4. The expert shall be able to ensure regular checking of the LNG system.			
Competence	KNOWLEDGE and SKILLS	Competence	Content of curricula
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		
Training asset used:		Sufficient	
Remarks:		Yes	NO

<b>5. The expert shall be able to know how to perform LNG bunkering operations in a safe and controlled manner.</b>			
<b>Competence</b>	<b>KNOWLEDGE and SKILLS</b>	<b>Competence</b>	<b>Content of curricula</b>



1. perform and monitor bunkering procedures in a safe way.	1. Knowledge of <ul style="list-style-type: none"><li>• identification marking in line with relevant police and port regulation,</li><li>• conditions for berthing and moorage for bunkering purposes,</li><li>• LNG bunkering procedure,</li><li>• purging of the LNG system,</li><li>• relevant checklists and delivery certificate,</li><li>• bunkering safety measures and evacuation procedures.</li></ul>		
	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.		
Training asset used:		Sufficient	
Remarks:		Yes	NO

6. The expert shall be able to prepare the LNG system for craft maintenance.			
Competence	KNOWLEDGE and SKILLS	Competence	Content of curricula
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.		
	<b>2. Ability to perform</b> <ul style="list-style-type: none"> <li>• inerting of the LNG system,</li> <li>• LNG fuel tank drainage procedure,</li> <li>• first filling of LNG fuel tank (drying and cooldown),</li> <li>• entry into service following a shipyard stay.</li> </ul>		
	3. Knowledge and ability to control proceedings in case of leakage, fire, man over board, collision and evacuation, including crisis and crowd management		
Training asset used:		Sufficient	
Remarks:		Yes	NO

<b>7. The expert shall be able to handle emergency situations related to LNG.</b>			
<b>Competence</b>	<b>KNOWLEDGE and SKILLS</b>	<b>Competence</b>	<b>Content of curricula</b>
1. react appropriately in emergency situations (such as LNG spills and leaks, skin contact with low temperature substance, fire,	1. Knowledge of emergency measures and on-board safety documentation (including the		





incidents related to transport of dangerous goods with specific hazards or craft running aground).	safety plan and safety instructions).		
	2. Ability to react appropriately in case of emergencies such as <ul style="list-style-type: none"><li>• on-deck LNG spills,</li><li>• skin contact with LNG,</li><li>• LNG spills in closed spaces (e.g. in engine rooms),</li><li>• LNG spills or natural gas leaks in inter-barrier spaces (e.g. double-walled fuel tanks, double-walled pipes),</li><li>• fire in the vicinity of LNG fuel tanks or in the engine rooms,</li><li>• pressure built up in pipe systems after Emergency Shut Down activation in case of imminent release or venting.</li></ul>		
	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.		
Training asset used:		Sufficient	
Remarks:		Yes	NO