

**COMPETENCE REQUIREMENTS  
FOR TECHNICAL  
OPERATION PERSONNEL IN  
NORWEGIAN SHIPPING COMPANIES'  
SHORE ORGANIZATIONS**

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## **0.0 Preface**

The author of this study has a background from STCW standard (college) Eng. Officer; the 3 first years (GK, VK I, VK II) 1990 – 1993 and later the last year (VK III) 1999 – 2000. The author's practical experience is about 10 years of seagoing experience in different levels of Marine Engineering Officer positions followed by 6 years in Superintendent and Fleet Manager positions in shipping companies; then MSc Maritime Management candidate at HIVE from 2011.

This background can have influenced the objectivity of the study, although there has been a strong focus on remaining neutral.

The background for studying this area is the increasing amount of factors controlling and regulating both Norwegian and international shipping segments, currently without any sort of certification or evidence of competence being required or planned introduced in the future for the personnel responsible for safety management of the shipping activities from the shipping companies' shore organizations.

I would like to express my appreciation to the companies contributing to this thesis; Det Norske Veritas, Lloyds Register, Wilson, Color Line, Petroleum Geo Services, Golar LNG (Golar Wilhelmsen Management) and Wilhelmsen Ship Management (Norway) AS.

The last mentioned company has also been the author's employer since March 2007.

## **1.0 Abstract**

This thesis has focused on the competence requirements in the shore side organizations of shipping companies, limited to the technical personnel (Superintendents and Fleet Managers) that are mainly responsible for the safe and efficient operation of the vessels as per statutory, class and industry requirements.

The shipping industry has become subject to a large collection of international, national, class society and industry implied regulations and standards over the last few decades. This has significantly increased the competence requirements for all personnel involved in ship operation. While the STCW convention sets clear requirements for education, training and experience for personnel working on board the vessels, there are no formal requirements for personnel employed in the shore side organizations. When the ISM code was introduced in 1998, much of the responsibility for the vessel safety management was moved from the Captain to the Company, without addressing competence needs in the Company.

The aim of the study has been to find out if the Norwegian higher education institutions meet the competence requirements for technical personnel employed in the shore side organizations of shipping companies when considering how these requirements have grown by the introduction of several comprehensive regulations which have changed the way international shipping is managed.

The main result is that the competence required in total is currently offered within courses offered by the institutions within Norwegian higher educational system. However, the training as offered is unfortunately spread over a variety of education programs which have to be combined in order to satisfy the industry needs.

The conclusion is therefore that a study program must be developed specifically targeted for the shipping company's technical personnel if the current and future competence requirements are to be met in the best possible way.

## 2.0 Introduction

Shipping and vessel operation is subject to a large number of regulations. As the business is global, both national law and regulations and international conventions applies, in addition to the ship Classification regime and customer / industry specific regulations. Cargo owners / shippers like the major oil companies have set standards for health & safety, environment protection and quality which exceed the regulations implemented globally upon agreement between the shipping nations. They have their own vessel inspection / auditing regimes (vetting) anchored in joint venture organizations like Oil Companies International Marine Forum (OCIMF) and individual initiatives.

Due to the consolidated strength such cooperation generates, ship operators have few choices but to follow the requirements set by the customers. In order to set own business standards and help with fulfilling the requirements set by the cargo owners, ship operators and other service providers have formed organizations like International Marine Contractors Association (IMCA) and Intertanko. Such organizations also have their own audit / vetting regimes in order to quality assure the members based on agreed standards.

In addition, a large number of shipping companies also choose to hold various ISO certifications as well in order to document quality for their customers. International Maritime Organization (IMO) is the main international organization when it comes to regulations for the global shipping industry, and has issued a large number of conventions (IMO, 2013)

The most known conventions are: International Convention for the Safety of Life at Sea (International Maritime Organization [IMO-SOLAS], 2009), International Convention on Standard of Training, Certification and Watchkeeping for Seafarers (International Maritime Organization [IMO-STCW], 2011), International Convention for the Prevention of Pollution from Ships (International Maritime Organization [IMO-MARPOL], 2011), International Ship and Port Facility Security Code (International Maritime Organization [IMO-ISPS], 2003) Convention on the Regulations for Preventing Collisions at Sea (International Maritime Organization [IMO-COLREG], 2002), International Maritime Dangerous Goods Code (International Maritime Organization [IMO-IMDG], 2012), International Convention on Load Lines (International Maritime Organization [IMO-LOADLINE], 2005) etc.

The most important individual mandatory regulatory body that has been implemented to regulate the global shipping industry is the International Safety Management Code

(International Maritime Organization [IMO-ISM], 2010), which was developed by IMO following a series of accidents during the 1980's where human errors and management fault was identified as contributing factors.

The ISM code (IMO-ISM 2010) was made mandatory in 1998 (revised in 2010) and set requirements for a shipping company's safety management system, and moves much of the responsibility for the operation of the vessel from the Master to the Company's shore side organization, and thereby given formal responsibilities for the vessel safety management to the company's shore based operation organization.

The ISM code (IMO-ISM 2010) has therefore at the same time created a major competence requirement for shipping company's shore side personnel related to all regulations and conventions concerning normal vessel operation. Shore side personnel also need to have knowledge of more traditional aspects of vessel operation like navigational practices, maintenance systems and procedures, machinery and equipment operation, crewing/recruitment requirements etc.

All in all, the competence & knowledge requirement for vessel operation from the company side is overwhelming, and due to the implementation of the above mentioned factors the requirement has increased significantly over the last 20 years.

In order for a company to be approved as a ship manager, the ships Flag State (nation of registry) has to verify that the company fulfil Flag State and IMO requirements applicable for the operation of the vessel. Once this is verified, a Document of Compliance (DOC) is issued. This is a certificate issued to the ship management company to prove that the company is found qualified to manage vessels flying the State's Flag. The verification and certification is normally done by one of the approved Classification Societies (International Association of Classification Societies, 2011) on behalf of the Flag State.

When all identified sources of regulations and requirements to vessel operation responsible are summarized, it is clear that comprehensive competence is needed. While the STCW convention sets clear requirements for education, training and experience for personnel working on board the vessels, there are no formal requirements for personnel employed in the shore side organizations.

As per the classification societies (DNV and Lloyds as interviewed, Appendix 1&2), the four key segments of vessel operation that requires the specific vessel operation competence are:

- 1: Technical Department (Superintendents and Fleet Managers).
- 2: Health, Safety, Environment and Quality Department (HSEQ Superintendent, Designated Person Ashore [DPA]), Management system responsible).
- 3: Crewing Department (Manning Superintendent, recruitment, payroll).
- 4: Management.

From interviews with shipping companies it has been observed that the common practice is that the Superintendents and Fleet Managers are given the formal responsibilities for most of the operation of the individual vessels; hence these positions require a degree of competence in all areas. This study will therefore address these two positions only, and since the Fleet Manager role is in most cases manned by promoted Superintendents with sufficient experience, the study will focus on the Superintendent role.

The purpose of this study is therefore to answer the following question:  
Do the Norwegian higher education institutions offer adequate education programs for personnel responsible for technical / maritime operations within shipping companies' shore side organizations?

The hypothesis before starting this study was that a combination of a civilian BSc Engine Officer and a MSc Maritime Management would be close to the optimal education background for technical personnel.

## **3.0 Methods**

### **3.1 Summary**

This study is based qualitative analysis of data collected through interviews, openly available rules and regulations mandatory for the shipping industry and information from the main Classification Society's training programs. The average interview time was 2.5 hours per interview.

The first task has been to create a list of competence areas (hereafter called competence factors) relevant for the shipping companies and to develop this list and rate the factors during interviews with selected shipping companies.

The second task was to identify relevant maritime education programs offered in Norway and to collect and study the relevant syllabuses to determine what competence they offer.

The third task was to study how the programs cover the needs of the industry and to process the information.

### 3.2 Competence Requirement Identification

The first step of this thesis is to identify the competence / knowledge that may be required for the function covered in the study; technical vessel operation.

The primary sources used for such information are the International Maritime Organization (IMO), which is the organ behind all internationally acknowledged regulations and requirements related to the operation of vessels in international trade, and the Classification Societies, which are IMO acknowledged organs that set requirement for vessel design, construction, equipment, and maintenance. The Classification Societies are also verifying the shipping companies' compliance with relevant IMO regulations / requirements, in addition to many of the Flag State's specific regulations.

In order to limit the information sources, the two largest Classification Societies for Norwegian flagged vessels have been selected used in this thesis; Det Norske Veritas (DNV) and Lloyds Register (LR). The distribution of Norwegian flagged vessels per Classification Company is extracted from "IHS Fairplay World Register of Ships" December 2012 version (IHS, 2012).

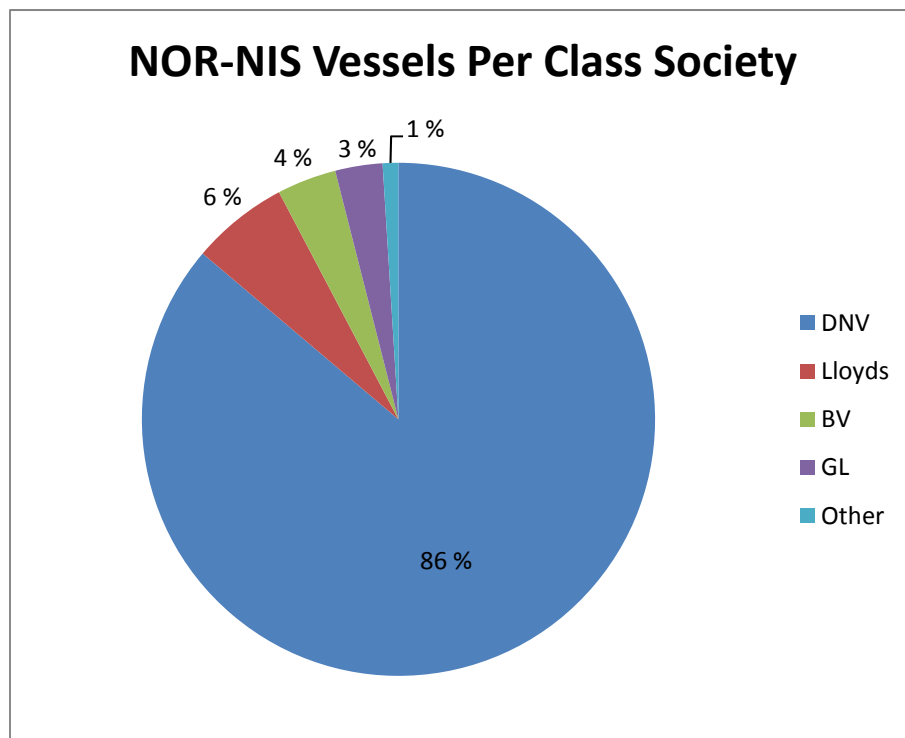


Figure 1. Data based on IHS Fairplay 12-2012 list



These two Classification Companies offer a considerable training program for shipping personnel; see extracted program description in Appendix 12 and 13. Both companies also offer a Superintendent training program; DNV as a separate web based solution and LR as a combination of their course program.

Another source of needed competence is the Superintendent's Manual (Norwegian Shipowners' Association [NSA], 2005). This is a comprehensive type of encyclopaedia developed by the ship owners to offer guidance to the Superintendent with all of his/her expected tasks and problems.

An initial list of competence factors (Appendix 8) was developed based on the following: mandatory and expected IMO conventions (STCW included), key competence areas identified from the Classification Societies' training programs, competence areas identified during the interviews with the two classification companies, and the Superintendent Manual (NSA, 2005).

### **3.3 Selection Of Shipping Companies For Interviews**

Furthermore, the IHS Fairplay list of Norwegian flagged vessels (IHS, 2012) was used to identify main areas of Norwegian shipping: Offshore (including Seismic), Passenger/Ferry, Tankers and a combination of Bulk, Ro-Ro and General Cargo. Fishing vessels are registered under "Miscellaneous" in the IHS Fairplay list, and they are not given any individual focus in this thesis as they operate under less comprehensive or in some areas the same requirements as the least regulative intensive bulk carriers.

Based on these main areas, five representative shipping companies were selected for in-depth interviews regarding competence and knowledge:

#### **3.3.1 Petroleum Geo Services (PGS)**

PGS is one of the world's largest offshore seismic companies operating 17 vessels in worldwide offshore trade. PGS is currently building a series of four vessels that will be the world's highest capacity seismic vessels (W-class), whereof the first is expected delivered spring 2013, and they have been operating the world's six highest capacity seismic survey vessels (Ramform Class) for more than a decade.

As the seismic companies are operating under the same strict oil major standards as platform support vessels (PSV) and in general have higher number of crew on board, often carry out more complex operations and are considerably more capital intensive compared to a basic PSV, PGS is a good representative for the offshore segment.

Vice President Maritime Operations Harald Sundby was interviewed March 8 2013 at PGS' head office in Lysaker.

PGS' technical team has a background divided as follows: 25% MSc, 25% BSc and 50% college education. 75% of the personnel have more than 10 years of seagoing experience, 25% have more than 10 years relevant shore side experience.

### **3.3.2 Wilhelmsen Ship Management (Norway) AS (WSM)**

WSM is a part of the WW group, one of Norway's oldest shipping companies with more than 150 years of ship owning history related to various types of vessels. WSM manages a variety of vessels; the largest single segment is Wilh. Wilhelmsen owned Ro-Ro vessel, but they also cover seismic/offshore, cruise, cable layers etc, and has 48 vessels on full technical management. The company is therefore a good representative of the Ro-Ro segment in addition to being an all-round ship manager.

General Manager for WSM was interviewed March 18 2013 at WW's head office in Lysaker.

WSM's technical team has a background divided as follows: 13,5% MSc, 13,5% BSc and 73% College education. 80% have more than 10 years seagoing experience, 53% have more than 10 years of relevant shore side experience.

### **3.3.3 Golar LNG**

Golar LNG is specialised in 3 LNG related segments: LNG transportation, Floating Storage & Regasification Units (FSRU's) and Floating Liquefaction (FLNG). The company has 13 vessels in operation (9 carriers and 4 FSRU's), and a very comprehensive new building program with another 13 vessels (10 carriers and 3 FSRU's) being delivered over the next few years.

Golar Management has recently formed a joint venture company with Wilhelmsen Ship Management; Golar Wilhelmsen Management AS (GWM), which is the company responsible for the technical management of their vessels. However, the company is dedicated to LNG management and have a managing director who has no relations to Wilhelmsen, hence the company is a good representative for deep sea tankers with the added aspect of the high competence requirements related to LNG processing.

GWM's Managing Director Øistein Dahl was interviewed April 8 2013 at their office on Aker Brygge, Norway.

GWM technical team has a background divided as follows: 25% MSc, 25% BSc and 50% College education, 75% have more than 10 years seagoing experience, 62,5% have more than 10 years of relevant shore side experience.

### **3.3.4 Wilson ASA**

Wilson is a short sea general cargo carrier company with its head office in Bergen, Norway. The fleet consists of 110 vessels whereof 88 are owned by Wilson and remaining on charter agreements. The company is a fully integrated shipping company, controlling all functions from in-house business units. The company is therefore a good representative of the Norwegian general cargo business.

Wilson's Technical Director Jon Are Gummedal was interviewed April 11 at their head office in Bergen.

Wilson's technical team has a background divided as follows: 9% MSc, 58% BSc and 33% College education. 50% have more than 10 years seagoing experience, 17% have more than 10 years of relevant shore side experience.

### **3.3.5 Color Line**

Color Line is a passenger / car ferry company operating 6 NOR flagged vessels on the South East coast of Norway; all in trade between Norway and Denmark, Sweden or Germany. The two largest vessels are by far the largest passenger ferries deployed in a fixed schedule to/from a Norwegian port. The company is fully integrated and own all vessels they operate, and the company owner is Norwegian. The company is therefore a good representative of the passenger ferry segment.

Color Line Marine's Director Svein Sørensen and Project Director Jan Helge Pile were interviewed April 22 at their head office in Sandefjord.

Color Line's technical team has a background divided as follows: 14% MSc, 29% BSc and 57% College education. 57% have more than 10 years seagoing experience, 100% have more than 10 years of relevant shore side experience.

## **3.4 Interview Methods**

All interviews were conducted by K. Bjørklund as a personal face to face interview at the interviewee's head offices in Norway in the period of January to April 2013. The interviewees were given a printed copy of the interview form at the beginning of the interview, but the answers given were typed into the form electronically by interviewer. Upon

completion of each interview the electronic interview document was e-mailed to the interviewee for review, comments and/or corrections before final approval by the interviewee.

During the interviews the companies were asked to rate the importance of each identified competence factor on a scale of 1-5, and to name other, non-listed relevant / important competence factors for their operation.

The companies were also asked to indicate from where they expect the competence (both basic and supplementary as applicable) to be obtained from; “College/University Education”, “Ship Board Experience”, “Shore Side Experience”, “External Training/Course”, “Internal Training/Course” or “Combined Experience” (a combination of ship-shore experience and external-internal training).

It was emphasized during the interviews that they should consider how Norway’s *future* education system should provide competence in their opinion, not base their answer on today’s actual education options. The interviewees were encouraged to identify additional competence factors important for their operation.

The companies also rated their current competence in each area and were asked to provide the individual background (education and experience) for their technical personnel; this information is mainly dedicated for further in depth studies related to actual background vs competence of their technical personnel and comparison with other companies. In order to avoid a tendency to rate their actual competence higher than reality to appear as a high competence business outwards the companies were informed that the actual competence score will remain anonymous; only an average score will be published in the thesis.

The competence factors added during the interview process were distributed among the 5 interviewed companies so that all companies could evaluate/rate the competence factors suggested by others.

Finally, a final list of industry required competence factors was generated after inputs from the interviews. The five interview scores were merged to create an average score for the final competence list. Only factors with an average grading of 2 or higher were included. Also, a factor would only be included if one or more of the companies stated that the competence should originate from college or universities.

This list of competence factors was then used as the basis to create a gap analysis between competence requirements in the industry and competence offered by the various identified education providers.

### 3.5 Educational Institutions

The next step was to find out how the education system meets the industry requirements for competence. This was done by selecting education facilities offering Maritime education at the following levels: STCW (Vocational school), Bachelor (with and without STCW standards) and Master.

Only Høyskolen i Vestfold, Høgskolen i Ålesund and NTNU Trondheim offers maritime directed education at Master level in Norway, but there are several education facilities offering STCW approved education and Bachelor degrees for seafarers (Norwegian Maritime Directorate's [NMD] December 4 2012).

Using Norwegian Maritime Directorate's "Oversikt over godkjente maritime skoler og kurssetter" (NMD, 2012) as the starting point, training centres and other organizations offering less than one year programs were removed from the list. Further, the organisations offering education to less than VG3 were removed, then NTNU was added to the list, creating "Maritime Education Facilities, Basic List" (Appendix 11). This list names 19 colleges / universities, out of which 12 are on the STCW requirements at "Fagskole" level for nautical or engineering studies. "Universitetet i Tromsø", and "Høgskolen i Stord Haugesund" offers a Bachelor degree in Nautical studies; "Høgskolen i Ålesund" offers a Bachelor degree in Nautical studies in addition to a Master degree in Ship Design and a 1 year Study in "Shippingledelse". "Høyskolen i Vestfold" is the only facility offering a Bachelor degree in "Marinteknisk Drift", and also offers Bachelor degree in "Nautikk" studies and "Skipsfart & Logistikk" in addition to their Master's degree in "Maritime Management".

The Royal Norwegian Naval Academy offers a Bachelor degree for Deck and Engineering Officers, all with a focus on naval administration and leadership methods. They also offer a shorter program for deck and engine officers based on STCW requirements only (provided by Bergen Maritime Fagskole) with added basic military leadership. This study will only consider the BSc programs from the Naval Academy as the lower program is very little differentiated from the other STCW Fagskole programs.

The Norwegian University of Science and Technology (NTNU) offers both two and five year Master programs in "Marin Teknikk" and various two year Master programs in Maritime Engineering in cooperation with foreign universities. These programs do not cover the STCW requirements for Navigational Officers or Marine Engineer; hence they cannot alone give access to ship board experience from management positions. However, the programs offer a comprehensive knowledge of naval architecture and other maritime technical competence in the various elective fields of specialization, and are highly relevant as an

alternative background for the Superintendent position as per interview statements. These programs have 5 different specialization areas, but due to the general nature of the competence factors it is not necessary to consider each individual area; only the two main programs with combined syllabuses are used in this study.

In order to simplify the study it is assumed that the various facilities around the country offering STCW standard and Bachelor degree deck or engine officer education provides in general the same competence (related to the Final List of Competence Factor, Appendix 10) at each facility.

The various directions in Norwegian Maritime education were then categorized based on the identified variations as listed in Table 1, Educational Options:

STCW Standard	Deck Officer
STCW Standard	Engine Officer
Naval Academy BSc	Deck Officer
Naval Academy BSc	Engine Officer
Other	Shippingledelse
Bachelor	Deck Officer
Bachelor	Engine Officer
Bachelor	Skipsfart & Logistikk
Bachelor	Ship Design
Master	Naval Architect
Master	Maritime Management

Table 1, Educational Options

The syllabus for each of the education options in Table 1 was collected and examined to find out to which degree they fulfil the demands from the final list of competence factors generated based on the shipping company interviews.

The English education term “Vocational school” has been used as translation for the Norwegian levels “Videregående Skole” and “Teknisk Fagskole” in this thesis. It may be discussed if it is correct to use this translation, or if “High School” should be used as well. However, this has no practical meaning for the purpose of the study.

### 3.6 Information Processing

During the interview process some competence factors were added to the Original List of Competence Factors (Appendix 8). These factors were rated / evaluated by all

interviewees, and a new list, Complete List of Competence Factors (Appendix 9) was generated. The ratings given for each factor was consolidated to an average rating for each factor, and factors that none of the interviewees expected to be covered by the education systems were removed. The Final List of Competence Factors (Appendix 10) with the average ratings for factor importance and actual competence was the result, and is used for the rest of the study.

### **3.7 Gap Analysis**

Finally, a gap analysis was made as presented in Table 2 under results. The analysis is based on the final list of competence factors (Appendix 10) and how the various educational options in Table 1 can provide competence under each of the factors.

## **4.0 Results**

The result of this study is best presented in the below gap analysis (Table 2) where it is clearly indicated with green colour how the various education options fulfil the competence requirements currently present in the industry.

The various education options have been given two indicative scores; a general score and a weighted score. In addition, the right side column “Perfect Program” indicates the maximum score achievable; this has been added purely for the purpose of comparing the individual program scores to the theoretical peak.

The general score simply counts how many competence factors the program covers, the weighted score is adding the importance rating for all competence factors the program covers. The weighted score is therefore the best indicator of to which degree the individual programs cover the industry needs.

We can see that the two BSc programs for Deck Officers are significantly higher than the others in both scores, followed by the Navy BSc Eng. Officer with the STCW Deck Officer and MSc programs following behind.

The score is primarily aimed for use in further studies and/or use by educational institutions aiming to modify their programs, and is therefore not given more attention in this study.

		Deck Officer STCW	Deck Officer Navy BSc	Deck Officer BSc	Engine Officer STCW	Engine Officer Navy BSc	Engine Officer BSc	Shippingledelse (1 Year)	Skipstaf & Logistikk BSc	Ship Design BSc	Naval Architect MSc	Maritime Management MSc	Perfect Program
Gen. Competence	1,1	Class Systematics											
	1,2	Ethical Conduct											
	1,3	People Skills											
	1,4	Leadership & Administration											
	1,5	Seagoing Exp. - Deck Off. (STCW Comp.)											
	1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)											
	1,7	Corporate Finance / Budgeting											
Hull & Machinery	2,1	Marine Materials											
	2,2	Hull Structure											
	2,3	Corrosion / Surface Protection											
	2,4	Cargo Equipment											
	2,5	Ship Equipment											
	2,6	Equipment for Crew and Passengers											
	2,7	Machinery Main Components											
	2,8	Machinery Systems											
	2,9	Ship Common Systems											
Vessel Ops.	3,1	Navigational Procedures											
	3,2	Cargo & Ballasting Operations											
	3,3	Port Operations											
	3,4	Voyage Economy & Planning											
	3,5	Maintenance Administration											
	3,6	Performance Monitoring											
	3,7	Energy Optimization											
	3,8	Machinery Operating Economy											
	3,9	Catering Operations											
Maritime Regulations	4,1	IMDG Code											
	4,2	COLREG											
	4,3	STCW											
	4,4	ISM Code											
	4,5	MARPOL											
	4,6	Load Line Convention											
	4,7	SOLAS											
	4,8	ISPS											
	4,9	ILO Regulations											
	4,1	Maritime Law											
	4,11	Flag State Regulations											
	4,12	Port State Control											
Crew / Manning	5,1	Crew Employment Contracts											
	5,2	Crew Recruitment											
	5,3	Career Development											
	5,4	Performance Appraisals											
	5,5	Training											
Com. Ops.	6,3	Vessel Sale / Purchase Contracts											
	6,4	Newbuilding Site Team & Contract Manag.											
	6,5	Drydocking / Repair Manag. & Contracts											
	6,6	Lay-up / Scrapping Procedures											
H S E O	7,1	Risk Management											
	7,2	Proactive & Reactive Improvements											
	7,3	Management of Change											
	7,4	Job Safety Analysis & Tool Box Meetings											
	7,5	Quality Assurance											
	7,6	Health & Safety											
	7,7	Management Systems											
	7,8	Environmental Protection											
	7,9	HSEQ Culture											
Finance & Purch.	8,1	Vessel Accounting											
	8,2	Vessel Budgeting & Budget Control											
	8,3	Crew Accounting											
	8,4	Insurance / Claims / Average Procedures											
	8,5	Purchasing Procedures											
	8,6	Supplier Selection Process											
	8,7	Logistics / Supply Chain											
	8,8	Basic Economy & Finance											
<b>General Score</b>		<b>25</b>	<b>36</b>	<b>36</b>	<b>11</b>	<b>23</b>	<b>17</b>	<b>8</b>	<b>19</b>	<b>17</b>	<b>21</b>	<b>19</b>	<b>63</b>
<b>Weighted Score</b>		<b>174</b>	<b>263</b>	<b>262</b>	<b>86</b>	<b>183</b>	<b>132</b>	<b>60</b>	<b>138</b>	<b>137</b>	<b>165</b>	<b>144</b>	<b>459</b>

Table 2, Gap Analysis



#### **4.1 Deck & Engine Officer STCW**

The STCW standard requirement (both Deck & Engine) covers the competence requirements to a low degree and would therefore need considerable additional education to reach acceptable standard. The Engine Officer STCW scores lowest (11 of 63) of the complete programs (Shippingledelse is hereafter considered as an addition to other programs) as it only scores well in section 2, Hull & Machinery. Deck Officer STCW scores lower in this specific section, but has a higher score in all other sections and is therefore a better option.

However, as there are much better alternatives to the basic STCW education, this option is not practical for the future technical shipping personnel as there are more efficient ways to reach the desired competence.

#### **4.2 BSc Deck & Engine Officer**

The BSc programs in general offer better competence in Section 1 (General Competence), section 7 (HSEQ) and Section 8 (Finance and Purchasing), and are therefore preferable compared to the STCW basics. In addition, all interviewees preferred this option as the source of theoretical competence for seagoing officers. It was mentioned that the added general competence from the three years of high school before commencing the BSc program provides a better basis for future competence development and also indicates a higher motivation / interest for such development.

As with the STCW basics, also at this degree the Deck Officer program offers competence that to a considerably higher degree fulfil the identified requirements compared to the Engine Officer.

However, there are significant competence gaps in Sections 5 (Crew & Manning), 6 (Commercial Operation) and 8 (Finance & Purchasing). The BSc Engine has in addition serious gaps in Sections 4 (Maritime Regulations) and 1 (General Competence).

#### **4.3 Navy BSc Deck & Engine Officer**

The Navy BSc program is longer than the civilian programs, and has more restrictions in how to qualify. However, in exchange you get an extensive focus on leadership and administration, logistics and purchasing.

The differences between the Deck and Engine programs are as the civilian programs; hence the Deck program is also here a better alternative.

The result is therefore that the best single education program offered in Norway at present is the Navy BSc Deck Officer.

However, there are also here significant competence gaps in Sections 5 (Crew & Manning), 6 (Commercial Operation) and 8 (Finance & Purchasing). The Navy BSc Engine has in addition a serious gap in Section 4 (Maritime Regulations).

#### **4.4 Shippingledelse (1 Year)**

This program is only one year and must be considered as a source of add-on competence for personnel already educated in the Maritime sector. It offers competence in Sections 1, 7 & 8, and could therefore be a supplement to the Engine Officer programs.

#### **4.5 Skipsfart & Logistikk BSc**

Although this program is designed for personnel in the logistical and freight chartering part of the business, it offers a fair coverage of the requirements in sections 1, 3, 7 & 8. This could also therefore be considered a supplement to other Maritime education programs, but due to the high degree of specialization in the core subjects the program is too long to be practical as a supplemental section.

#### **4.6 Ship Design BSc**

This program is offered in Ålesund and has a continuation to MSc level. It offers full coverage in Section 2 and fair coverage in Section 7, but does not give the STCW basic which is crucial to get seagoing Officer experience. There are noticeable gaps in Sections 1, 3 & 8, and significant gaps in Sections 4, 5 & 6.

As the program covers most of the technical and general aspects of the STCW requirements for Deck Officers, an additional Section here could have fulfilled the remaining requirements for navigational related competence and Maritime Regulations (Section 4).

#### **4.7 Naval Architect MSc**

This level is offered in Ålesund (MSc Ship Design) and at NTNU, which has several elective specialization areas. The NTNU program is a five year program without the option of dropping out with a BSc after three years, and offers a high degree of flexibility and customization within the given frames. However, as it provides a highly specialized

competence within these frames, in its current structure it does not provide a broad enough competence to cover the identified requirement without additional Maritime programs. As with the BSc Ship Design program, there are noticeable gaps in Sections 1, 3 & 8, and significant gaps in Sections 4, 5 & 6.

#### **4.8 Maritime Management, MSc**

This is a new program offered at Vestfold University College, aiming at a broad range of careers within the shipping industry. The program has two specialization directions; Technical and Commercial management, which have about 65% common courses. It offers, depending of the selected direction, partial competence coverage under Sections 1, 2, 4, 6, 7 & 8, and is therefore a good addition to the BSc Deck and Engine programs. However, as the program also targets many other backgrounds that are not focused on vessel operation, it has to prioritize very basic shipping related subjects in addition to the areas that are valuable for candidates with Maritime background who are best prepared for the positions covered by this study.

This program has a very good potential to provide much of the identified competence areas in the future with some adjustments; a solution could be three directions; one customized for previous Deck Officers, one for Engine Officers and one general Section (author's comment/conclusion).

## **5.0 Discussions**

### **5.1 General**

The study has identified the specific competence requirements shipping companies set for technical Superintendents and Fleet Manager and then looked into how the Norwegian education system fulfil these requirements. It is observed that no single current study program meets all requirements; only by combining several different programs can all competence factors be satisfied.

There are a couple of recent reports / studies that address competence related aspects of the maritime industry in Norway; "FAFO – Fra Sjø Til Land" (Reegård & Rogstad, 2012) and "MENON – En Kunnskapsbasert Næring" (Jakobsen & Espelien, 2011). They address the importance of seagoing experience, current educational background in the industry and future competence needs, but they do not address the current offerings in our education system.

In the general Norwegian shipping industry 4% of the employees hold an MSc degree and 15% has a BSc degree (Jakobsen et al., 2011). The same report states that 24% of personnel in the general Norwegian business have a Master or Bachelor degree. The technical personnel of the companies interviewed in this study have a significantly higher degree of education, with 16% MSc and 31% BSc. This can be explained by this study only looking at one specific group and therefore not taking the less competence intensive functions of the shipping companies into consideration. However, it was documented in the interviews that the companies actively seek higher education for their technical personnel, in addition to seagoing experience.

Education must be seen as a tool to develop competence (Jakobsen et al., 2011). A statement that came up in several of the interviews is that people who seek a higher academic education from an early stage will in general have a higher hunger for competence and knowledge development beyond that what is needed for their immediate future needs, and that the academic background gives stronger analytical skills. The interviews both support and expands Jakobsen's statement as the interviewees see higher education as a sign of motivation to develop further competence in addition to the competence that results from the education itself.

Eight of ten shipping companies state that seagoing experience is a deciding competence factor when recruiting personnel to shore based positions (Reegård, et al., 2012). Obviously, not only Norwegian seafarers accumulate this experience, but it is less likely that they will settle down in Norway after ending the seagoing career (Reegård, et al., 2012). This thesis focuses on the education options offered in Norway as one can assume that these students are most likely to become shore side employees for the Norwegian shipping companies. About 50% of employees in shipping companies have seagoing experience, and a majority of shipping companies state that seagoing Officer / Management experience is their priority (Reegård, et al., 2012). This indicates the importance of having an STCW based education as a base; without it a Superintendent / Fleet Manager cannot get experience from Officers level at sea.

The interviews conducted in this study support the need for seagoing experience at Officer levels; all five interviewed companies state that Deck or Engine Officer experience is a part of the ideal background for their Superintendent. Three of the five companies also want their ideal Superintendent to hold an MSc in a maritime technical related field.

## **5.2 Shortcomings Of Current Programs**

When using the identified competence areas as the baseline we can see that most of these are covered by one or more of the current programs. However, some competence areas as identified are not currently addressed.

### **5.2.1 General competence**

Several areas in this section are not covered by most of the programs. An important area like Class systematic is only covered by one program, and it can be questioned if this program provides sufficient competence in the area. Ethical conduct is only covered by the Navy programs, and is becoming more and more important as the Norwegian shipping companies establish themselves in regions of the world with very different culture than the Norwegian (author's remark).

Competence in Class systematic is easily available from external courses provided by the Classification companies themselves.

Competence in ethical conduct is not easily found in existing offerings, and the basics in this area should have focus from an early stage in the education / career development.

Complementary competence can only be provided internally in each company as they tend to have individual rules guidelines adapted to their operations.

### **5.2.2 Maritime regulations**

This section is in general only covered by the Deck Officer programs. However, the required level of competence in most of the areas in this section is achieved relatively easy by self study of the openly available regulations. Competence in these areas will anyways require periodic updating as the regulations are subject to changes and additions frequently.

Maritime law is a more comprehensive study that is not found as a practical single study.

### **5.2.3 Crew and manning**

Only the Navy programs have some focus on this section, but many areas are not at all addressed by the existing programs. Most of the areas can and should be addressed by internal training as there are company specific aspects to consider, but basic competence in identification of training needs (5,5), career development (5,3) and performance appraisals (5,4) could be included in future education programs.

### **5.2.4 Commercial operation**

This section is only covered by the MSc Mar. Management program, and lay-up / scrapping (6,6) is not addressed by any current program.

In the highly volatile shipping market, lay-up is unfortunately a normal part of the business, and is a process that require competence to manage correctly.

New IMO regulations regarding recycling of vessels set demand for competence in the scrapping area as well. Lay-up & scrapping competence can be addressed by external course providers in the future, but the other parts of this section should be addressed better by the Maritime educational programs in the future.

### **5.2.5 HSEQ**

From the final list of competence factors (Appendix 10) we find that this section is by far deemed as the most important competence section by the interviewees. Although it is covered to some degree by all programs except from the STWC basics, the Maritime educational facilities will have to prioritize this higher in the future. This area has had increasing focus in all areas of the shipping business over the last decade, but especially the oil & offshore industry has been a driving force lately through vetting & auditing organizations like Intertanko, OVID, IMCA etc.

Internal and external training are good sources for supplementary competence in the area, but a strong foundation should be laid as early as possible. *“Understanding HSEQ and how to build good HSEQ culture must be addressed by the educational facilities at the earliest possible stage”* (PGS interview statement).

### **5.2.6 Finance & purchasing**

Most of the areas are covered by some programs, but crew accounting (8,3) is not addressed. This area could however easily be covered by company internal training to the required competence degree.

Supplier selection processes (8,6) is an upcoming focus area, i.e. in ISO 9001 (quality standards), but only addressed by one program. This area should be addressed by more of the Maritime programs in the future.

## **5.3 Best Future Combinations**

Common for all companies interviewed is that they try to compose a technical team with diversified backgrounds as the “ideal” Superintendent holding all required competence is very hard, if not impossible, to find in today’s market.

When looking at how the various education options fulfil the industry requirements it is apparent that none of the options can be considered as satisfactory for the industry.

The best solution from the current programs is a combination of BSc Deck Officer and MSc Naval Architecture, and will meet most of the industry requirements; a combination of the BSc Eng. Officer program and MSc Maritime Management will also be a relatively satisfactory solution, but without the navigational competence. Unfortunately, these combinations will result in a very long education period of 11 years. Combining two or more of the programs is therefore impractical as it in most cases will generate a very long study program with duplicated competence areas that will not be attractive for students or the industry.

The best future solution could be to combine a current 5 year MSc naval architecture program, which already include the technical/structural and design aspects of shipping necessary to fulfil the STCW requirements for a Deck Officer, with an added section to cover the remaining STCW requirements for deck officers to allow the candidate to obtain seagoing officer experience.

The current MSc programs offered at NTNU and the MSc offered in Ålesund do to a great extent cover the general and technical STCW requirements for Deck Officers.

If a new elective part was developed for the program to meet the remaining requirements of STCW, the result would be an MSc program close to the optimal content for technical personnel in shipping companies as it would produce a Deck Officer with comprehensive knowledge of the technical / engineering aspects of ship operation.

This would require that the responsible institutions for relevant Maritime MSc programs carry out an analysis to determine how much of the general and technical part of the STCW requirement that their program already cover, and then to develop an additional elective segment to cover the remaining STCW part, which would mostly be related to navigational aspects.

A student could then take an MSc in naval architecture and in addition elect a section that will qualify him/her for a Deck Officer position at sea. The student could upon completion of the education have a short seagoing career to provide the seagoing experience that is highly valued by the shipping companies, and hold the higher technical and theoretical competence that is also highly valued.

The remaining uncovered competence factors would be mostly crewing related, which in general have the lowest importance ratings and can be supplemented by company internal training, and Class systematic. Class Systematics has a high importance rating, but in depth knowledge in this area is as mentioned readily available through good quality external training provided by the Classification Companies themselves.

All five interviewed companies emphasized that ongoing learning and accumulation of experience is a very important part in most of the competence factors, and due to the nature of some of them (i.e. updated regulations, new technologies or procedures), it is essential. However, the interviewees also stated that the Norwegian education system should be the source of the basic (or initial) competence even in factors where we see frequent changes, as this will put the candidates in a better position to keep themselves updated with ongoing changes and updates.

## **5.4 Hypothesis**

The hypothesis before starting this study was that a combination of a civil BSc Engine Officer and a MSc Maritime Management would be close to the optimal education background for technical personnel. The study has shown that my hypothesis was wrong, and in addition it has brought attention to several education options that I did not give much attention before the program, i.e. the two BSc programs offered by the Royal Norwegian Navy, and the comprehensive MSc programs at NTNU.

The competence in the technical Hull & Machinery section that traditionally has been covered by the Engine Officers seems to have lost some of its relative importance as many new competence requirements have been introduced under the Superintendent's areas of responsibility.

Also, with today's highly technologically advanced vessels, many aspects of the electrical-, machinery- and auxiliary equipment maintenance & repair processes will anyway require highly specialized external competence from manufacturers regardless of the Superintendent's general technical competence (author's comment/conclusion).

## **5.5 Limitations**

A very limited number of shipping companies have been interviewed for this study; hence there is a related degree of inaccuracy that must be considered when interpreting the results. However, it has been important to select representative companies from all sections of the Norwegian shipping business.

Same level and type of education programs offered from different education facilities around the country have been merged and thereby generalized. For the lowest level of education in this study (STCW standard) it should not have any influence as the programs are



designed to meet a very specific international standard, but for the BSc programs there is more flexibility when it comes to the subjects offered beyond the STCW requirements. The study also assumes that the student select the “correct” elective courses according to industry needs.

The study of what the different education programs actually offers of knowledge related to the various identified competence factors has been done by careful review of the available syllabuses from the education facilities; hence there is some uncertainty in the interpretation. It is also impossible to determine with 100% certainty to which degree the programs offer knowledge under each factor.

The perhaps most significant limitation of the study is the list of competence factors itself. The list has been based on applicable rules and regulations, current training programs and interviews with Class Society auditors, but at the start of the study it was expected that the shipping companies would add more factors during the interviews than the four that were actually added. This may indicate that the interviewees assumed that the list was complete and correct, even if they were encouraged to identify additional factors important to them.

The study has not addressed the need for general science subjects (realfag) from a superintendent’s perspective. This would be of particular importance if the Deck and Engine officer education was still offered as a four year high school (videregående skole) program, which did not qualify students for further university studies due to insufficient weighting on these subjects. However, although the majority of Norwegian seagoing personnel educated from the late 1970’ to 2000 have used this program, it is no longer offered and therefore excluded from the study. The lowest level of today’s officer education (Vocational school) offers a considerably higher level of general science subject than the previous program.

The study has not covered the supplementary educational offerings from Class Societies or other institutions, in example safety and quality related competence providers like Falck Nutec and Quality Management Academy (QMA).

Further work related to the topic could with benefit look into how the private providers of specialized competence could contribute to offerings from the official Norwegian higher education institutions, and if / how cooperation projects could help improve and streamline the total educational product offered.

Further work should also reveal to which degree the current MSc programs at Ålesund and NTNU fulfil the STCW requirements for Deck Officers, and further look into the feasibility of an additional elective module for these programs that can give the student the theoretical competence required for Deck Officer on board oceangoing vessels.

## **6.0 Conclusion**

As per today, the Norwegian education system do not offer one single education direction that meet the competence requirements we find in the shipping companies for technical Superintendents or Fleet Manager. However, most of the competence required is currently offered in one or more of the existing programs.

Unfortunately, the only way to meet all requirements is through a combination of several different studies, which in practical terms is very unlikely as the total education time will by far exceed acceptable limits.

## 7.0 References

### 7.1 Reference List

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MANAGING RISK

# Maritime Competence

Competence Requirement for Shipping Companies'  
Shore Side Personnel

## Interview with DNV Senior Auditor Harald Sivertsen

Time: 22/1-2013, 10:00 – 11:15  
Place: DNV Head Office, Høvik Norway  
Interview By: Kenneth Bjørklund, MSc Student, HIVE

### Introduction:

The purpose of the interview is to identify current and future competence requirements for personnel working in shipping companies.

The interview is focused on technical management as required for ISM/ISPS certification (DoC holder requirements) and other standards related to technical management like ISO 9000 & 14000 series.

Commercial management is not relevant to any of the questions.

### Questions:

1. What is your position & title in the company?  
*Principal Surveyor / Lead Auditor*
2. How long experience do you have in the maritime industry?  
*About 40 years, including 3 years as teacher at a maritime college and 13 years with QA management in private shipping companies (Offshore and gas). Employed in DNV since 1999.*
3. How long have you been auditing shipping companies?  
*About 27 years, 13 years before DNV related to internal QA.*
4. Against which standards are you qualified to audit shipping companies?  
*ISO 9000, 14000, 50000 Series. OSHAS 18000 Series. MET (Marine Education & Training). MED (Marine Equipment Directive). ISM. ISPS. MPQA (Product Certification). MSA (Marine Survey Arrangements). Type Approvals. Service Suppliers. Recreational Craft Construction, MLC Inspections.*

5. How are auditors in your company trained and approved?  
*According to VQSC (Veritas Qualification, Safety and Certification Scheme). Requirements for number of audits participated in, comprehensive training and personal skills.*
6. Which segments / departments / positions in shipping company are required to hold systems and competences according to ISM & ISPS standards?  
*ISPS is audited on vessels only, only initial approval of the SSP is required from the office.  
For the ISM part, all that can affect safety; technical, crewing, HSEQ, Management, and IT.*
7. Which segments / departments / positions in shipping company are required to hold systems and competences according to ILO & MLC standards?  
*HSEQ for document review, technical for design. The main focus is on the vessel.*
8. Which segments / departments / positions in a shipping company are required to hold systems and competences according to ISO 9000 & 14000 standards?  
*All segments; Technical, Crewing, HSEQ, Management, IT, Purchasing and Accounting.*
9. From your experience, how has the knowledge & competence requirement for ship operators (technical management) developed over the last 30 years?  
*The recruitment for these positions has traditionally been from the ship personnel, i.e. people with seagoing experience.  
Currently the recruitment has shifted towards general engineering from a non Maritime background and without seagoing experience.  
Many crewing positions are recruited from the nation's military services.  
The ISM Code has moved much responsibility for the operation of the vessel from the Master to the Company, which has increased the formal competence requirement for shore side personnel working with technical ship operation.  
Both IMO (ISM) and Class have significantly changed the focus to more risk based management. Understanding and managing risk has therefore become very important over the last 10-15 years. This area is not addressed by the traditional educational organizations (college and universities).*
10. What are the most common findings / non-conformances you see related to ISM audits?  
*I am a member of the global ISM Quality Drive group, where findings are collected and analyzed from ISM audits globally.  
Currently many findings are related to ISM section 10 (Maintenance and compliance with applicable regulations). This is in fact a sign indicating that the audit methods can be improved; we would like to see more focus and findings on section 9 (reports and analysis on non-conformities, accidents and hazardous occurrences), which is reactive corrections and learning, and section 7 (shipboard operations) which is related to identification of risk and therefore proactive management.*

11. What are the most common findings / non-conformances you see related to ISPS audits?

*The ISPS audits are done on the vessel, only pre-certification of the Ship Security Plan is done via the office.*

*However, this an area where the competence requirement lies within the company's contingency group, Company Security Officer (CSO) and Designated Person Ashore (DPA).*

12. What are the most common findings / non-conformances you see related to ISO 9000 audits?

*Findings are often related to both pro-active and re-active improvement. The standard also set requirement to process orientation in the management system, which results in many findings.*

13. What are the most common findings / non-conformances you see related to ISO 14000 audits?

*Same as question 12, but related to environmental management.*

14. What are the most common findings / non-conformances you see related to crew management during audits?

*The most common problem is identification and mapping of the competence requirement for sailing personnel. Secondly, findings are related to building the competence as per the needs.*

*There are crew requirement for:*

- *Certification (basic/general competence)*
- *Training (as per company's operational needs)*
- *Familiarization (vessel & company specific)*
- *Medical Fitness*

15. What are the most common findings / non-conformances you see related to other audits?

*Risk identification and management, as mentioned in question 12.*

16. From your experience, to which degree does the existing shipping company personnel hold the required competence related to current mandatory regulations / conventions?

- *Technical Operation personnel*
- *Crewing personnel*
- *HSEQ personnel*
- *Management*
- *Other personnel*

*In general one can say that all segments have challenges related to proactive and reactive improvement, problems to keep on top of the comprehensive regulations applicable to ship operation like SOLAS, MARPOL, STCW, ILO, Class, Flag and local (Port State).*

*The companies are putting in an honest effort to identify competence based on individual appraisal processes where each individual has good opportunities to bring up personal competence needs and get necessary attention.*

*This process works better for the shore side personnel than for ship's crew.*

17. From your experience, to which degree does the existing shipping company personnel hold the required competence related to current non-mandatory standards?

- Technical Operation personnel
- Crewing personnel
- HSEQ personnel
- Management
- Other personnel

*The companies are in general performing well when it comes to customer requirements like Vetting / TMSA / OCIMF regimes. The good performance here can probably be linked to the immediate threat of loss of income in cases of not complying with requirements.*

*However, most of these requirements are to a large degree fulfilled if the company can document in-depth compliance with the ISM Code and ISO 9- & 14000 series*

18. Which challenges related to competence of shore side personnel do you see for shipping companies in the future?

*The balance between theoretical competence and practical (seagoing) experience is a major challenge. The current problem is that the practical experience is losing its position and creates an imbalance towards theoretical competence.*

*This problem is relevant not only for shipping companies, but for Class societies, service and product suppliers to the industry, regulatory authorities etc.*

*A possible cause of this is that the salary levels for seagoing personnel is too high compared to the maritime related positions shore side; hence the recruitment from ship to shore is reduced. This may lead to further use of foreign personnel in the shipping companies, and in the long run more relocation of shipping companies to the areas where competence can be found at a competitive cost level.*

19. Which, if any, upcoming regulations, conventions, other / customer requirements or will be the most important drivers for competence in the future shipping companies?

*ISO 50001 – Energy Management*

*ILO (MLC)*

*Risk Management*

*Ballast Water Management Systems*

20. What is the typical background / education for the DoC / ISO relevant positions in shipping companies?

- Technical Operation personnel

*General Engineers, traditionally mostly Chief Engineers.*

*Not many with deck/navigational experience.*



- Crewing personnel

*Radio Officers, Deck Officers.  
Some with military background.*

- HSEQ personnel

*Mostly Deck Officers.*

- Management

*MBA's, Economists and some few Captains.*

21. Do you know of maritime education facilities that can offer education aimed at discussed personnel?

*DNV*

*Colleges for Ship's Engineers*

*HIVE*

22. Do you believe that the existing education and training system meet current and future competence requirements in the shipping business?

*No. I have experience from teaching at Maritime colleges as late as 2007. The curriculums are too weak and far behind the business development. An example is that ISM is hardly mentioned in the public education system.*

*The competence among teachers is in general old and outdated related to the current and future shipping regulations and technologies.*

*I am a member of the Maritime Education Forum in Norway; one of the key challenges we see is recruitment of teachers with the correct competence.*

*Salary level is the main challenge here as the Colleges / Universities cannot compete with the maritime industry for the best candidates.*

23. In your opinion, what is the optimal education and experience for shipping company personnel?

- Technical Operation personnel

*Ship's Engineering with seagoing experience and additional education related to risk management.*

- Crewing personnel

*Deck / Engine Officer, seagoing experience from management positions, with additional HR related education/training.*

- HSEQ personnel

*Vessel Master, with a Master Degree in Risk Management.*

- Management

*MBA's with solid leader experience. Not necessarily experience from vessel operation.*

24. Do you see other challenges for future shipping companies?

*Competence related to new technology, design and regulations. The current education system is too far behind and very slow to change.*

*Most Ship Officers are trained at basic College level (Fagskole), which only focus on the requirements set by STCW.*

*Fortunately, the University Colleges (Høyskoler) aim higher than these requirements, but are also in general too slow to update the curriculum according to current requirements.*



# Maritime Competence

Competence Requirement for Shipping Companies'  
Shore Side Personnel

## **Interview with Lloyds Senior Auditor Øyvind Bolstad**

Time: 29/1-2013, 09:00 – 11:15  
Place: Lloyds Oslo Office, Skøyen Norway  
Interview By: Kenneth Bjørklund, MSc Student, HIVE

### Introduction:

The purpose of the interview is to identify current and future competence requirements for personnel working in shipping companies.

The interview is focused on technical management as required for ISM/ISPS certification (DoC holder requirements) and other standards related to technical management like ISO 9000 & 14000 series.

Commercial management is not relevant to any of the questions.

### Questions:

1. What is your position & title in the company?  
*“Senior Engineer Surveyor, ISM/ISPS Lead Auditor.”*
2. How long experience do you have in the maritime industry?  
*“45 Years, 22 years seagoing and 23 in Lloyds.”*
3. How long have you been auditing shipping companies?  
*“Since ISM was introduced in 1998, about 15 years.”*
4. Against which standards are you qualified to audit shipping companies?  
*“ISM and ISPS.”*

5. How are auditors in your company trained and approved?  
*“Internal training. 2 weeks dedicated course, then practical learning by doing 10 audits together with qualified auditor during 12 months.  
The preferred background is seagoing experience with good interpersonal skills.”*
6. Which segments / departments / positions in shipping company are required to hold systems and competences according to ISM & ISPS standards?  
*“Top Management (Company’s representative in legal terms), QA Responsible, Superintendents, Designated Person Ashore (DPA), Crewing department and Purchasing.  
The personnel behind these positions are in small companies often combined, meaning that one person is holding more than one area of responsibility. In larger organizations there are specialized and dedicated personnel for each function, hence the competence area is wider for the combined positions.  
The ISM Code is the single convention / shipping regulation with the highest industry impact that has been introduced in modern times.”*
7. Which segments / departments / positions in shipping company are required to hold systems and competences according to ILO standards?  
*“I do not audit against ILO (MLC).”*
8. Which segments / departments / positions in a shipping company are required to hold systems and competences according to ISO 9000 & 14000 standards?  
*“I do not audit against ISO.”*
9. From your experience, how has the knowledge & competence requirement for ship operators (technical management) developed over the last 30 years?  
*“In the earlier years there was a large base of Norwegian sailors on Norwegian vessels, which made it easy to recruit from the fleet to office positions.  
This opportunity is very limited at present; there are fewer sailors to choose from and the salary levels for senior positions on the vessels (Chief Eng. and Captain) is so high that it is not attractive to move to shore side positions. The result is that more recruitment is from personnel without seagoing experience or specialized maritime education, which means that much experience and/or knowledge of practical ship operations is missing.  
Alternatively recruitment is done from seagoing personnel from foreign countries, which means that the knowledge of Norwegian shipping culture and to some extent the ship types we operate here is missing.”*
10. What are the most common findings / non-conformances you see related to ISM audits?  
*“Internal audits not done as per requirements and Reporting routines.”*

11. What are the most common findings / non-conformances you see related to ISPS audits?

*“Not many problems here at present. Sometimes the Ship Security Assessment (SSA) is not done properly at the time of approval of the Ship Security Plan (SSP).”*

12. What are the most common findings / non-conformances you see related to ISO 9000 audits?

*“I do not audit against ISO).”*

13. What are the most common findings / non-conformances you see related to ISO 14000 audits?

*“I do not audit against ISO).”*

14. What are the most common findings / non-conformances you see related to crew management during audits?

*“Medical documentation and certificates being outdated/expired.”*

15. What are the most common findings / non-conformances you see related to other audits?

N/A

16. From your experience, to which degree does the existing shipping company personnel hold the required competence related to current mandatory regulations / conventions?

- Technical Operation personnel
- Crewing personnel
- HSEQ personnel
- Management
- Other personnel

*“Mostly companies have ok competence. Smaller companies have a tendency to take longer to implement new regulations satisfactory.”*

17. From your experience, to which degree does the existing shipping company personnel hold the required competence related to current non-mandatory standards?

- Technical Operation personnel
- Crewing personnel
- HSEQ personnel
- Management
- Other personnel

*“The comprehensive vetting regimes from oil majors create many challenges for the shipping companies, all personnel groups. “*

18. Which challenges related to competence of shore side personnel do you see for shipping companies in the future?

*“Recruitment of personnel with understanding of ship operation from a seagoing perspective. The danger is that vessels are seen as numbers and part of statistics, and the personnel side is overlooked.”*

19. Which, if any, upcoming regulations, conventions, other / customer requirements or will be the most important drivers for competence in the future shipping companies?

*“New IT solutions and communication procedures is developing fast, which is a challenge. The human factor may be forgotten in the race for new and efficient solutions.*

*The technological complexity increase, in particular on electrical / automation and propulsion solution. This creates large differences in the different ship types as the traditional “deep sea” cargo vessels are falling behind.*

*It should be discussed if the requirements for maritime certificates (STCW) should be differentiated for the most advanced vessel types (i.e Diesel electric operation).”*

20. What is the typical background / education for the DoC / ISO relevant positions in shipping companies?

- Technical Operation personnel

*“Marine Engineer, often Chief Engineer. Sometimes Engineers from NTNU Marintec. Some (few) Captains.”*

- Crewing personnel

*“Some Radio Officers, but this profession is disappearing. Personnel from shipping families, who have a particular interest for the business.”*

- HSEQ personnel

*“Captains and other Deck Officers.”*

- Management

*“Rarely shipping experience, in these positions there is more focus on general leadership skills and experience.”*

21. Do you know of maritime education facilities that can offer education aimed at discussed personnel?

*“Lloyds offer a considerable course program. I do not have knowledge of any traditional education facilities other than the traditional STCW based facilities for Deck and Engine officers.”*

22. Do you believe that the existing education and training system meet current and future competence requirements in the shipping business?

*“I do not see the current education system as satisfactory; the '97 Reform leached / reduced the definitions of professions in the education system, which I see as negative. Any education program must in some way manage to compensate for the missing practical seagoing experience that we will face in the future, which will be a challenge.”*

23. In your opinion, what is the optimal education and experience for shipping company personnel?

- Technical Operation personnel

*“Seagoing experience, marine engineer, combined with additional education like NTNU Marintec.”*

- Crewing personnel

*“Understanding of the shipping environment, including life on board a vessel, combined with HR / Personnel Administration education.”*

- HSEQ personnel

*“Captains / Deck officers or general QA experience from other industries with high QA requirements.”*

- Management

*“General leadership education and experience; not necessarily shipping experience.”*

24. Do you see any other challenges for future shipping companies?

*“The competition from the East will continue to increase, i.e. the by far largest classification society is Japanese. China is in strong growth, and a new classification society is under development in the Middle East, which will strengthen the cluster in this region.*

*The Norwegian oil industry can be seen as both positive and negative for Norwegian shipping; positive as a driver of technology and competence, negative as a driver of rapid cost increase.*

*However, the cost pressure will have a stronger impact on our competitors in the East with time; increasing quality demand also in these regions will force the actors in the market to compete for competence in the same market as European companies.”*

Company Information	
Company Name	Wilson
Location of technical Operation Centre	Bergen
# Of Superintendents & FM's	12
Main Activity	Cargo Transport
Secondary Activity	N/A
# Of Vessels, primary	110
# Of Vessels, secondary	
Primary vessel trade area	Europe
Secondary vessel trade area	
Primary vessel trade range	Short Sea
Secondary vessel trade range	
Interview Date	11.04.2013
Person Interviewed	<p><b>Technical Director Jon Are Gummedal</b>            Gummedal has educational background from Marine Engineer (VKII), Teknisk Fagskole, Høyskole (BSc) and BI Project Management/Leadership + a Leadership programme. He has about 1 year sailing experience, 2 years as Project Engineer, then Superintendent in Wilson for 5 years and 5 years as Technical Director.</p>

General Comments	Wilson's technical operation is split into two locations; one in Bergen and one in Russia.
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Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence	Preferred Source of Supplementary Competence
<b>General Competence</b>					
1,1	Class Systematics	4		College / University	
1,2	Ethical Conduct	3		Ext. Course Providers	
1,3	People Skills	5		Ext. Course Providers	
1,4	Leadership & Administration	5		College / University	
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)	2		College / University	
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)	4		College / University	
1,7	Corporate Finance / Budgeting	2		Internal Course/Training	
Other					
<b>Hull &amp; Machinery</b>					
2,1	Marine Materials	3		College / University	
2,2	Hull Structure	4		College / University	Ext. Course Providers
2,3	Corrosion / Surface Protection	4		College / University	Ext. Course Providers
2,4	Cargo Equipment	5		College / University	
2,5	Ship Equipment	5		College / University	
2,6	Equipment for Crew and Passengers	3		College / University	
2,7	Machinery Main Components	5		College / University	Ext. Course Providers
2,8	Machinery Systems	5		College / University	
2,9	Ship Common Systems	4		College / University	
Other					
<b>Vessel Operation</b>					
3,1	Navigational Procedures	1		College / University	
3,2	Cargo & Ballasting Operations	3		College / University	
3,3	Port Operations	2		Internal Course/Training	
3,4	Voyage Economy & Planning	1		Internal Course/Training	
3,5	Maintenance Administration	4		College / University	
3,6	Performance Monitoring	4		College / University	
3,7	Energy Optimization	3		College / University	
3,8	Machinery Operating Economy	3		College / University	
3,9	Catering Operations	1		Ext. Course Providers	
Other					



<b>Maritime Regulations</b>					
4,1	IMDG Code	4		Internal Course/Training	
4,2	COLREG	1		Internal Course/Training	
4,3	STCW	2		Internal Course/Training	
4,4	ISM Code	5		College / University	
4,5	MARPOL	4		College / University	
4,6	Load Line Convention	3		Internal Course/Training	
4,7	SOLAS	5		College / University	
4,8	ISPS	1		Internal Course/Training	
4,9	ILO Regulations	2		Internal Course/Training	
4,10	Maritime Law	2		College / University	
4,11	Flag State Regulations	5		Internal Course/Training	
4,12	Port State Control	5		Internal Course/Training	
4,13	OVID	0			
Other					
<b>Crew / Manning Procedures</b>					
5,1	Crew Employment Contracts	2		Internal Course/Training	
5,2	Crew Recruitment	3		Internal Course/Training	
5,3	Career Development	2		Internal Course/Training	
5,4	Performance Appraisals	3		Internal Course/Training	
5,5	Training	3		Internal Course/Training	
Other					
<b>Commercial Operation</b>					
6,1	Charter Party's	0		Internal Course/Training	
6,2	Freight Contracts / Bill of Lading	0		Internal Course/Training	
6,3	Vessel Sale / Purchase Contracts	3		College / University	
6,4	Newbuilding Site Team & Contract Manag.	4		College / University	
6,5	Drydocking / Repair Manag. & Contracts	5		College / University	
6,6	Lay-up / Scrapping Procedures	3		College / University	
6,7	Client Contracts	1			
Other					
<b>HSEQ Processes</b>					
7,1	Risk Management	4		College / University	Ext. Course Providers
7,2	Proactive & Reactive Improvements	4		College / University	Ext. Course Providers
7,3	Management of Change	2		College / University	Ext. Course Providers
7,4	Job Safety Analysis & Tool Box Meetings	4		College / University	Ext. Course Providers
7,5	Quality Assurance	4		College / University	Ext. Course Providers
7,6	Health & Safety	4		College / University	Ext. Course Providers
7,7	Management Systems	4		College / University	Ext. Course Providers
7,8	Environmental Protection	4		College / University	Ext. Course Providers
7,9	HSEQ Culture	4		College / University	Ext. Course Providers
Other					
<b>Finance &amp; Purchasing</b>					
8,1	Vessel Accounting	5		Internal Course/Training	
8,2	Vessel Budgeting & Budget Control	5		College / University	
8,3	Crew Accounting	2		Internal Course/Training	
8,4	Insurance / Claims / Average Procedures	3		Internal Course/Training	
8,5	Purchasing Procedures	3		Internal Course/Training	
8,6	Supplier Selection Process	4		Internal Course/Training	
8,7	Logistics / Supply Chain	3		Internal Course/Training	
8,8	Basic Economy & Finance	3		College / University	
Other					

**What is the ideal background for Technical Superintendents and Fleet Managers?**

Has seagoing experience in senior management on board. Experience from service work within maritime is an advantage.

Ideal background	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience		
Shoreside Experience		
Other		

Background Superintendent / FM 1	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		2-5
Other		

Background Superintendent / FM 2	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 3	Level	Program
Education 1	Master/Sivilingenør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience		None
Shoreside Experience		5-10
Other		

Background Superintendent / FM 4	Level	Program
Education 1	College	Tech. General
Education 2		
Education 3		
Seagoing Experience		2-5
Shoreside Experience		2-5
Other		

Background Superintendent / FM 5	Level	Program
Education 1	Bachelor/Ingeniør	Electrical
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		5-10
Other		

Background Superintendent / FM 6	Level	Program
Education 1	College	Eng. Off
Education 2	Bachelor/Ingeniør	Tech. Maritime
Education 3		
Seagoing Experience		None
Shoreside Experience		5-10
Other		

Background Superintendent / FM 7	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		5-10
Other		

Background Superintendent / FM 8	Level	Program
Education 1	Bachelor/Ingeniør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience		None
Shoreside Experience		5-10
Other		Been working many years as service engineer for main engine manufacturer

Background Superintendent / FM 9	Level	Program
Education 1	Bachelor/Ingeniør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience		None
Shoreside Experience		5-10
Other		Been working many years as service engineer for main engine manufacturer

<b>Background Superintendent / FM 10</b>	<b>Level</b>	<b>Program</b>
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

<b>Background Superintendent / FM 11</b>	<b>Level</b>	<b>Program</b>
Education 1	Bachelor/Ingeniør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience		2-5
Shoreside Experience		5-10
Other		

<b>Background Superintendent / FM 12</b>	<b>Level</b>	<b>Program</b>
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		< 2
Other		

Company Information					
Company Name		Wilhelmsen Ship Management (Norway) AS			
Location of technical Operation Centre		Lysaker, Norway			
# Of Superintendents & FM's		15			
Main Activity		Cargo Transport			
Secondary Activity		Offshore / Oil Exploration			
# Of Vessels, primary		24			
# Of Vessels, secondary		17			
Primary vessel trade area		World Wide			
Secondary vessel trade area		World Wide			
Primary vessel trade range		Deep Sea			
Secondary vessel trade range		Offshore			
Interview Date		18.03.2013			
Person Interviewed		<b>General Manager Håkon Lenz</b> Lenz has an MSc in Marin Teknikk, Officer training from the Norwegian navy and many years of shoreside experience from both Class societies and different ship management positions, including Superintendent and Fleet Manager.			
General Comments					
Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence	Preferred Source of Supplementary Competence
<b>General Competence</b>					
1,1	Class Systematics	4		Combined Experience	Ext. Course Providers
1,2	Ethical Conduct	4		Internal Course/Training	
1,3	People Skills	4		Combined Experience	Ext. Course Providers
1,4	Leadership & Administration	4		College / University	Combined Experience
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)	4		College / University	Seagoing Experience
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)	4		College / University	Seagoing Experience
1,7	Corporate Finance / Budgeting	3		College / University	Internal Course/Training
Other					
<b>Hull &amp; Machinery</b>					
2,1	Marine Materials	4		College / University	Ext. Course Providers
2,2	Hull Structure	4		College / University	Ext. Course Providers
2,3	Corrosion / Surface Protection	4		College / University	Ext. Course Providers
2,4	Cargo Equipment	4		College / University	Ext. Course Providers
2,5	Ship Equipment	4		College / University	Ext. Course Providers
2,6	Equipment for Crew and Passengers	4		College / University	Ext. Course Providers
2,7	Machinery Main Components	4		College / University	Ext. Course Providers
2,8	Machinery Systems	4		College / University	Ext. Course Providers
2,9	Ship Common Systems	4		College / University	Ext. Course Providers
Other					
<b>Vessel Operation</b>					
3,1	Navigational Procedures	4		College / University	Ext. Course Providers
3,2	Cargo & Ballasting Operations	4		College / University	Ext. Course Providers
3,3	Port Operations	3		Combined Experience	
3,4	Voyage Economy & Planning	4		Seagoing Experience	Ext. Course Providers
3,5	Maintenance Administration	4		Combined Experience	Ext. Course Providers
3,6	Performance Monitoring	4		Ext. Course Providers	
3,7	Energy Optimization	4		Ext. Course Providers	
3,8	Machinery Operating Economy	4		Ext. Course Providers	
3,9	Catering Operations	4		Ext. Course Providers	
Other					

<b>Maritime Regulations</b>					
4,1	IMDG Code	4		Ext. Course Providers	
4,2	COLREG	4		Ext. Course Providers	
4,3	STCW	5		Ext. Course Providers	
4,4	ISM Code	5		Ext. Course Providers	
4,5	MARPOL	5		Ext. Course Providers	
4,6	Load Line Convention	4		Ext. Course Providers	
4,7	SOLAS	5		Ext. Course Providers	
4,8	ISPS	5		Ext. Course Providers	
4,9	ILO Regulations	5		Ext. Course Providers	
4,10	Maritime Law	4		Ext. Course Providers	
4,11	Flag State Regulations	4		Ext. Course Providers	
4,12	Port State Control	5		Ext. Course Providers	
4,13	OVID	5		Ext. Course Providers	
Other					
<b>Crew / Manning Procedures</b>					
5,1	Crew Employment Contracts	3		Ext. Course Providers	Internal Course/Training
5,2	Crew Recruitment	3		Ext. Course Providers	Internal Course/Training
5,3	Career Development	5		Ext. Course Providers	Internal Course/Training
5,4	Performance Appraisals	5		Ext. Course Providers	Internal Course/Training
5,5	Training	5		Ext. Course Providers	Internal Course/Training
Other					
<b>Commercial Operation</b>					
6,1	Charter Party's	3		Combined Experience	Ext. Course Providers
6,2	Freight Contracts / Bill of Lading	3		Combined Experience	Ext. Course Providers
6,3	Vessel Sale / Purchase Contracts	3		Combined Experience	Ext. Course Providers
6,4	Newbuilding Site Team & Contract Manag.	3		Combined Experience	Ext. Course Providers
6,5	Drydocking / Repair Manag. & Contracts	5		Combined Experience	Ext. Course Providers
6,6	Lay-up / Scrapping Procedures	4		Combined Experience	Ext. Course Providers
6,7	Client Contracts	4		Combined Experience	Ext. Course Providers
Other					
<b>HSEQ Processes</b>					
7,1	Risk Management	5		Internal Course/Training	Ext. Course Providers
7,2	Proactive & Reactive Improvements	5		Internal Course/Training	Ext. Course Providers
7,3	Management of Change	5		Internal Course/Training	Ext. Course Providers
7,4	Job Safety Analysis & Tool Box Meetings	5		Internal Course/Training	Ext. Course Providers
7,5	Quality Assurance	5		Internal Course/Training	Ext. Course Providers
7,6	Health & Safety	5		Internal Course/Training	Ext. Course Providers
7,7	Management Systems	5		Internal Course/Training	Ext. Course Providers
7,8	Environmental Protection	5		Internal Course/Training	Ext. Course Providers
7,9	HSEQ Culture	5		Internal Course/Training	Ext. Course Providers
Other					
<b>Finance &amp; Purchasing</b>					
8,1	Vessel Accounting	4		College / University	Internal Course/Training
8,2	Vessel Budgeting & Budget Control	4		College / University	Internal Course/Training
8,3	Crew Accounting	3		College / University	Internal Course/Training
8,4	Insurance / Claims / Average Procedures	4		College / University	Internal Course/Training
8,5	Purchasing Procedures	4		College / University	Internal Course/Training
8,6	Supplier Selection Process	4		College / University	Internal Course/Training
8,7	Logistics / Supply Chain	4		College / University	Internal Course/Training
8,8	Basic Economy & Finance	4		College / University	Internal Course/Training
Other					

**What is the ideal background for Technical Superintendents and Fleet Managers?**

Mixed competence in the group is preferred, sivilingeniører and people with seagoing experience.

Ideal background	Level	Program
Education 1	Bachelor/Ingeniør	Deck Off.
Education 2	Bachelor/Ingeniør	Eng. Off
Education 3	Master/Sivilingenør	Tech. Maritime
Seagoing Experience	5-10	
Shoreside Experience	2-5	
Other	Officer positions from vessels; one or the other direction.	

Background Superintendent / FM 1	Level	Program
Education 1	College	Eng. Off
Education 2	Master/Sivilingenør	Management
Education 3		
Seagoing Experience	5-10	
Shoreside Experience	5-10	
Other		

Background Superintendent / FM 2	Level	Program
Education 1	College	Electrical
Education 2		
Education 3		
Seagoing Experience	10+	
Shoreside Experience	10+	
Other		

Background Superintendent / FM 3	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience	5-10	
Shoreside Experience	2-5	
Other		

Background Superintendent / FM 4	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 5	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 6	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		5-10
Other		

Background Superintendent / FM 7	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		5-10
Other		

Background Superintendent / FM 8	Level	Program
Education 1	College	Electrical
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 9	Level	Program
Education 1	College	Deck Off.
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		< 2
Other		



Background Superintendent / FM 10	Level	Program
Education 1	College	Electrical
Education 2	College	Eng. Off
Education 3		
Seagoing Experience		10+
Shoreside Experience		2-5
Other		

Background Superintendent / FM 11	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 12	Level	Program
Education 1	College	Tech. General
Education 2	Bachelor/Ingeniør	Eng. Off
Education 3	Master/Sivilingenør	Tech. General
Education 4	College	Management
Seagoing Experience		5-10
Shoreside Experience		10+
Other		

Background Superintendent / FM 13	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 14	Level	Program
Education 1	College	Electrical
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 15	Level	Program
Education 1	College	Deck Off.
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		< 2
Other		

Company Information	
Company Name	Petroleum Geo Services
Location of technical Operation Centre	Lysaker, Norway
# Of Superintendents & FM's	8
Main Activity	Offshore / Oil Exploration
Secondary Activity	Offshore / Oil Exploration
# Of Vessels, primary	15
# Of Vessels, secondary	2
Primary vessel trade area	World Wide
Secondary vessel trade area	World Wide
Primary vessel trade range	Offshore
Secondary vessel trade range	Offshore
Interview Date	08.03.2013
Person Interviewed	<p><b>Vice President Maritime Ops. Harald Sundby</b></p> <p>Sundby has a Bachelor degree in Nautical studies, basic mechanical education, officer qualification from the Norwegian army and a seagoing career ending with several years as Master. He has more than 10 years experience from shoreside maritime management.</p>

General Comments	The secondary vessels are support vessels for the seismic survey vessels (primary). Combined competence in group is used to answer actual
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Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence	Preferred Source of Supplementary Competence
<b>General Competence</b>					
	Class Systematics	5		College / University	Shore Side Experience
	Ethical Conduct	4		Internal Course/Training	
	People Skills	4		College / University	Combined Experience
	Leadership & Administration	4		College / University	Internal Course/Training
	Seagoing Exp. - Deck Off. (STCW Comp.)	3		College / University	Seagoing Experience
	Seagoing Exp. - Eng. Off. (STCW Comp.)	3		College / University	Seagoing Experience
	Corporate Finance / Budgeting	2		College / University	Internal Course/Training
Other					
<b>Hull &amp; Machinery</b>					
	Marine Materials	4		College / University	
	Hull Structure	4		College / University	
	Corrosion / Surface Protection	4		College / University	
	Cargo Equipment	4		College / University	
	Ship Equipment	4		College / University	
	Equipment for Crew and Passengers	4		College / University	
	Machinery Main Components	4		College / University	
	Machinery Systems	4		College / University	
	Ship Common Systems	4		College / University	
Other					
<b>Vessel Operation</b>					
	Navigational Procedures	2		Shore Side Experience	Internal Course/Training
	Cargo & Ballasting Operations	2		Shore Side Experience	
	Port Operations	2		Combined Experience	
	Voyage Economy & Planning	1		Shore Side Experience	
	Maintenance Administration	5		College / University	Combined Experience
	Performance Monitoring	5		College / University	Combined Experience
	Energy Optimization	5		College / University	Ext. Course Providers
	Machinery Operating Economy	5		College / University	Ext. Course Providers
	Catering Operations	2		Combined Experience	
Other					

Maritime Regulations					
	IMDG Code	3		College / University	Ext. Course Providers
	COLREG	1		Special Course Providers	
	STCW	3		College / University	Ext. Course Providers
	ISM Code	5		College / University	Ext. Course Providers
	MARPOL	5		College / University	Ext. Course Providers
	Load Line Convention	4		College / University	Ext. Course Providers
	SOLAS	5		College / University	Ext. Course Providers
	ISPS	4		College / University	Ext. Course Providers
	ILO Regulations	4		College / University	Ext. Course Providers
	Maritime Law	3		College / University	Ext. Course Providers
	Flag State Regulations	4		Ext. Course Providers	
	Port State Control	4		Ext. Course Providers	
Other	OVID	4		Ext. Course Providers	
Crew / Manning Procedures					
	Crew Employment Contracts	2		Internal Course/Training	Combined Experience
	Crew Recruitment	2		Internal Course/Training	Combined Experience
	Career Development	4		Internal Course/Training	Combined Experience
	Performance Appraisals	5		Internal Course/Training	Combined Experience
Other	Training	4			
Commercial Operation					
	Charter Party's	1		College / University	Ext. Course Providers
	Freight Contracts / Bill of Lading	1		College / University	
	Vessel Sale / Purchase Contracts	4		College / University	Ext. Course Providers
	Newbuilding Site Team & Contract Manag.	4		College / University	Ext. Course Providers
	Drydocking / Repair Manag. & Contracts	5		College / University	Ext. Course Providers
	Lay-up / Scrapping Procedures	4		College / University	Ext. Course Providers
Other	Client Contracts	4		Internal Course/Training	
HSEQ Processes					
	Risk Management	5		College / University	Internal Course/Training
	Proactive & Reactive Improvements	5		College / University	Internal Course/Training
	Management of Change	5		College / University	Internal Course/Training
	Job Safety Analysis & Tool Box Meetings	5		College / University	Internal Course/Training
	Quality Assurance	5		College / University	Internal Course/Training
	Health & Safety	5		College / University	Internal Course/Training
	Management Systems	5		College / University	Internal Course/Training
	Environmental Protection	5		College / University	Internal Course/Training
Other	HSEQ Culture	5		College / University	
Finance & Purchasing					
	Vessel Accounting	3		College / University	Internal Course/Training
	Vessel Budgeting & Budget Control	5		College / University	Internal Course/Training
	Crew Accounting	2		Internal Course/Training	
	Insurance / Claims / Average Procedures	4		College / University	Internal Course/Training
	Purchasing Procedures	4		Internal Course/Training	
	Supplier Selection Process	4		Internal Course/Training	
	Logistics / Supply Chain	3		College / University	Internal Course/Training
Other	Basic Economy & Finance	4		College / University	

**What is the ideal background for Technical Superintendents and Fleet Managers?**

MSc Engineering (Naval Architect or other) graduate who also has seagoing experience as Master is the best background.

Teknisk Fagskole is clearly preferred before VKIII level. Although some VKIII graduates have excellent competence, the average competence is considerably higher among the Teknisk Fagskole graduates. Høyskole (BSc) is preferred as source of the theoretical seagoing experience, our experience is that higher education broadens the range of competence and enables people to see "the bigger picture".

Cheif Engineers will in general need more shore side experience before they can fulfill the Superintendent role as they have less understanding of the vessel operational side, even if their technical competence is higher.

Ideal background	Level	Program
Education 1	Bachelor/Ingeniør	Deck Off.
Education 2	Master/Sivilingenør	Tech. Maritime
Education 3		
Seagoing Experience		2-5
Shoreside Experience		0-2
Other		

Background Superintendent / FM 1	Level	Program
Education 1	College	Deck Off.
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		0-2
Other		

Background Superintendent / FM 2	Level	Program
Education 1	Master/Sivilingenør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience		None
Shoreside Experience		2-5
Other		

Background Superintendent / FM 3	Level	Program
Education 1	Bachelor/Ingeniør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		5-10
Other		

Background Superintendent / FM 4	Level	Program
Education 1	College	Eng. Off
Education 2	College	Other
Education 3		
Seagoing Experience	10+	
Shoreside Experience	< 2	
Other	Royal Norwegian Navy :Submarine technical academy	

Background Superintendent / FM 5	Level	Program
Education 1	Bachelor/Ingeniør	Deck Off.
Education 2		
Education 3		
Seagoing Experience	10+	
Shoreside Experience	2-5	
Other		

Background Superintendent / FM 6	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience	10+	
Shoreside Experience	10+	
Other		

Background Superintendent / FM 7	Level	Program
Education 1	Bachelor/Ingeniør	Tech. General
Education 2	Master/Sivilingenør	Tech. Maritime
Education 3		
Seagoing Experience	None	
Shoreside Experience	10+	
Other		

Background Superintendent / FM 8	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience	10+	
Shoreside Experience	2-5	
Other		

Background Superintendent / FM 9	Level	Program
Education 1		
Education 2		
Education 3		
Seagoing Experience		
Shoreside Experience		
Other		

Company Information					
Company Name		Golar Wilhelmsen Management AS			
Location of technical Operation Centre		Aker Brygge, Norway			
# Of Superintendents & FM's		9			
Main Activity		Cargo Transport			
Secondary Activity		N/A			
# Of Vessels, primary		13			
# Of Vessels, secondary					
Primary vessel trade area		World Wide			
Secondary vessel trade area					
Primary vessel trade range		Deep Sea			
Secondary vessel trade range					
Interview Date		08.04.2013			
Person Interviewed		<p style="text-align: center;"><b>Managing Director Øistein Dahl</b></p> <p>Dahl has MSc in Marine Constructions from NTNU and Business Candidate from BI. He has 5 years offshore/subsea related eaxperience and 20 years varied experience from Høegh before he started with Golar in 2011.</p>			
General Comments		<p>We try to have a mixture of Captains, Chief Engineers and Professional Engineers in order to have a diversified team with the best possible total competence base. Analytical skills has become more important as technology develops; in this area the engineers from NTNU are stronger than maritime officers. They also in general hold higher competence in areas like performance monitoring, maintenance administration and energy optimization. We also try to ensure that our technical personnel take more ownership in the crew selection and development processes.</p>			
Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence	Preferred Source of Supplementary Competence
<b>General Competence</b>					
1,1	Class Systematics	3		Combined Experience	
1,2	Ethical Conduct	5		Combined Experience	
1,3	People Skills	5		Combined Experience	
1,4	Leadership & Administration	4		Combined Experience	Ext. Course Providers
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)	4		College / University	Combined Experience
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)	4		College / University	Combined Experience
1,7	Corporate Finance / Budgeting	2		Combined Experience	
Other					
<b>Hull &amp; Machinery</b>					
2,1	Marine Materials	3		College / University	Combined Experience
2,2	Hull Structure	4		College / University	Combined Experience
2,3	Corrosion / Surface Protection	4		College / University	Combined Experience
2,4	Cargo Equipment	4		College / University	Combined Experience
2,5	Ship Equipment	4		College / University	Combined Experience
2,6	Equipment for Crew and Passengers	4		College / University	Combined Experience
2,7	Machinery Main Components	4		College / University	Combined Experience
2,8	Machinery Systems	4		College / University	Combined Experience
2,9	Ship Common Systems	4		College / University	Combined Experience
Other					
<b>Vessel Operation</b>					
3,1	Navigational Procedures	4		College / University	Combined Experience
3,2	Cargo & Ballasting Operations	4		College / University	Combined Experience
3,3	Port Operations	3		College / University	Combined Experience
3,4	Voyage Economy & Planning	3		College / University	Combined Experience
3,5	Maintenance Administration	5		College / University	Combined Experience
3,6	Performance Monitoring	4		College / University	Combined Experience
3,7	Energy Optimization	4		College / University	Combined Experience
3,8	Machinery Operating Economy	4		College / University	Combined Experience
3,9	Catering Operations	3		College / University	Combined Experience
Other					

Maritime Regulations					
4,1	IMDG Code	3		College / University	Combined Experience
4,2	COLREG	3		College / University	Combined Experience
4,3	STCW	3		College / University	Combined Experience
4,4	ISM Code	4		College / University	Combined Experience
4,5	MARPOL	3		College / University	Combined Experience
4,6	Load Line Convention	3		College / University	Combined Experience
4,7	SOLAS	3		College / University	Combined Experience
4,8	ISPS	3		College / University	Combined Experience
4,9	ILO Regulations	3		College / University	Combined Experience
4,10	Maritime Law	3		College / University	Combined Experience
4,11	Flag State Regulations	3		College / University	Combined Experience
4,12	Port State Control	3		College / University	Combined Experience
4,13	OVID	0		College / University	Combined Experience
Other					
Crew / Manning Procedures					
5,1	Crew Employment Contracts	2		Combined Experience	Internal Course/Training
5,2	Crew Recruitment	2		Combined Experience	Internal Course/Training
5,3	Career Development	4		Combined Experience	Internal Course/Training
5,4	Performance Appraisals	4		Combined Experience	Internal Course/Training
5,5	Training	4			
Other					
Commercial Operation					
6,1	Charter Party's	3		College / University	Combined Experience
6,2	Freight Contracts / Bill of Lading	2		College / University	Combined Experience
6,3	Vessel Sale / Purchase Contracts	1		College / University	Combined Experience
6,4	Newbuilding Site Team & Contract Manag.	1		College / University	Combined Experience
6,5	Drydocking / Repair Manag. & Contracts	4		College / University	Combined Experience
6,6	Lay-up / Scrapping Procedures	1		College / University	Combined Experience
6,7	Client Contracts				
Other					
HSEQ Processes					
7,1	Risk Management	4		College / University	Combined Experience
7,2	Proactive & Reactive Improvements	4		College / University	Combined Experience
7,3	Management of Change	4		College / University	Combined Experience
7,4	Job Safety Analysis & Tool Box Meetings	4		College / University	Combined Experience
7,5	Quality Assurance	4		College / University	Combined Experience
7,6	Health & Safety	4		College / University	Combined Experience
7,7	Management Systems	4		College / University	Combined Experience
7,8	Environmental Protection	4		College / University	Combined Experience
7,9	HSEQ Culture	4		College / University	Combined Experience
Other					
Finance & Purchasing					
8,1	Vessel Accounting	3		College / University	Internal Course/Training
8,2	Vessel Budgeting & Budget Control	4		College / University	Internal Course/Training
8,3	Crew Accounting	2		College / University	Internal Course/Training
8,4	Insurance / Claims / Average Procedures	3		College / University	Internal Course/Training
8,5	Purchasing Procedures	4		College / University	Internal Course/Training
8,6	Supplier Selection Process	3		College / University	Internal Course/Training
8,7	Logistics / Supply Chain	2		College / University	Internal Course/Training
8,8	Basic Economy & Finance	2		College / University	Internal Course/Training
Other					

What is the ideal background for Technical Superintendents and Fleet Managers?
The total competence in the group is the most importance, 3 factors/areas: Ship engineers, ship navigators and specialiced civil engineers (MSc). Analytical skill is important and not well represented in the competence from seagoing experience/education.

Ideal background	Level	Program
Education 1	Bachelor/Ingeniør	Deck Off.
Education 2	Bachelor/Ingeniør	Eng. Off
Education 3	Master/Sivilingenør	Tech. Maritime
Seagoing Experience	< 2	
Shoreside Experience	< 2	
Other	Structure for development/education of Superintendents is important Shoreside experience can be a "Junior Superintendent" position.	

Background Superintendent / FM 1	Level	Program
Education 1	Master/Sivilingenør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience	None	
Shoreside Experience	2-5	
Other		

Background Superintendent / FM 2	Level	Program
Education 1	Master/Sivilingenør	Tech. Maritime
Education 2		
Education 3		
Seagoing Experience	10+	
Shoreside Experience	10+	
Other		

Background Superintendent / FM 3	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience	10+	
Shoreside Experience	10+	
Other		



Background Superintendent / FM 4	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		2-5
Other		

Background Superintendent / FM 5	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		< 2
Other		

Background Superintendent / FM 6	Level	Program
Education 1	Bachelor/Ingeniør	Electrical
Education 2	Bachelor/Ingeniør	Management
Education 3		
Seagoing Experience		None
Shoreside Experience		10+
Other		

Background Superintendent / FM 7	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 8	Level	Program
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

Background Superintendent / FM 9	Level	Program
Education 1		
Education 2		
Education 3		
Seagoing Experience		
Shoreside Experience		
Other		

Company Information	
Company Name	Color Line
Location of technical Operation Centre	Sandefjord, Norway
# Of Superintendents & FM's	7
Main Activity	Cruise / Passenger Ferries
Secondary Activity	
# Of Vessels, primary	6
# Of Vessels, secondary	
Primary vessel trade area	Scandinavia
Secondary vessel trade area	
Primary vessel trade range	Short Sea
Secondary vessel trade range	
Interview Date	22.04.2013
Person Interviewed	<p><b>Director Color Line Marine Svein Sørensen and Project Director Jan Helge Pile.</b></p> <p>They both consider themselves as technical personnel, hence their backgrounds are listed as 1 &amp; 2 in the background section.</p>

General Comments	Color Line Marine also have the responsibility for the technical aspect of the operation of the terminals (maintenance of ramps etc).
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Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence	Preferred Source of Supplementary Competence
<b>General Competence</b>					
1,1	Class Systematics	4		College / University	Ext. Course Providers
1,2	Ethical Conduct	5		College / University	Internal Course/Training
1,3	People Skills	3		Combined Experience	
1,4	Leadership & Administration	4		College / University	Combined Experience
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)	4		College / University	Seagoing Experience
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)	4		College / University	Seagoing Experience
1,7	Corporate Finance / Budgeting	4		Internal Course/Training	
Other					
<b>Hull &amp; Machinery</b>					
2,1	Marine Materials	3		College / University	Combined Experience
2,2	Hull Structure	2		College / University	Combined Experience
2,3	Corrosion / Surface Protection	3		College / University	Combined Experience
2,4	Cargo Equipment	4		College / University	Combined Experience
2,5	Ship Equipment	4		College / University	Combined Experience
2,6	Equipment for Crew and Passengers	4		College / University	Combined Experience
2,7	Machinery Main Components	4		College / University	Combined Experience
2,8	Machinery Systems	4		College / University	Combined Experience
2,9	Ship Common Systems	4		College / University	Combined Experience
Other					
<b>Vessel Operation</b>					
3,1	Navigational Procedures	2		College / University	Ext. Course Providers
3,2	Cargo & Ballasting Operations	2		College / University	Ext. Course Providers
3,3	Port Operations	1		College / University	Ext. Course Providers
3,4	Voyage Economy & Planning	3		College / University	Ext. Course Providers
3,5	Maintenance Administration	4		College / University	Ext. Course Providers
3,6	Performance Monitoring	4		College / University	Ext. Course Providers
3,7	Energy Optimization	4		College / University	Ext. Course Providers
3,8	Machinery Operating Economy	4		College / University	Ext. Course Providers
3,9	Catering Operations	4		College / University	Ext. Course Providers
Other					

<b>Maritime Regulations</b>					
4,1	IMDG Code	1		College / University	Combined Experience
4,2	COLREG	1		College / University	Combined Experience
4,3	STCW	3		College / University	Combined Experience
4,4	ISM Code	4		College / University	Combined Experience
4,5	MARPOL	4		College / University	Combined Experience
4,6	Load Line Convention	3		College / University	Combined Experience
4,7	SOLAS	4		College / University	Combined Experience
4,8	ISPS	4		College / University	Combined Experience
4,9	ILO Regulations	3		College / University	Combined Experience
4,10	Maritime Law	3		College / University	Combined Experience
4,11	Flag State Regulations	4		College / University	Combined Experience
4,12	Port State Control	4		College / University	Combined Experience
4,13	OVID	0			
Other					
<b>Crew / Manning Procedures</b>					
5,1	Crew Employment Contracts	1		College / University	Internal Course/Training
5,2	Crew Recruitment	1		College / University	Internal Course/Training
5,3	Career Development	3		College / University	Internal Course/Training
5,4	Performace Appraisals	2		College / University	Internal Course/Training
5,5	Training	3		College / University	Internal Course/Training
Other					
<b>Commercial Operation</b>					
6,1	Charter Party's				
6,2	Freigh Contracts / Bill of Lading				
6,3	Vessel Sale / Purchase Contracts	4		College / University	Combined Experience
6,4	Newbuilding Site Team & Contract Manag.	4		College / University	Combined Experience
6,5	Drydocking / Repair Manag. & Contracts	5		College / University	Combined Experience
6,6	Lay-up / Scrapping Procedures	3		College / University	Combined Experience
6,7	Client Contracts				
Other					
<b>HSEQ Proresses</b>					
7,1	Risk Management	4		College / University	Ext. Course Providers
7,2	Proactive & Reactive Improvements	4		College / University	Ext. Course Providers
7,3	Management of Change	3		College / University	Ext. Course Providers
7,4	Job Safety Analysis & Tool Box Meetings	4		College / University	Internal Course/Training
7,5	Quality Assurance	4		College / University	Ext. Course Providers
7,6	Health & Safety	4		College / University	Ext. Course Providers
7,7	Management Systems	4		College / University	Internal Course/Training
7,8	Environmental Protection	4		College / University	Ext. Course Providers
7,9	HSEQ Culture	5		College / University	Ext. Course Providers
Other					
<b>Finance &amp; Purchasing</b>					
8,1	Vessel Accounting	4		College / University	Combined Experience
8,2	Vessel Budgeting & Budget Control	4		College / University	Combined Experience
8,3	Crew Accounting	2		College / University	Combined Experience
8,4	Insurance / Claims / Average Procedures	4		College / University	Combined Experience
8,5	Purchasing Procedures	4		College / University	Combined Experience
8,6	Supplier Selection Process	4		College / University	Combined Experience
8,7	Logistics / Supply Chain	2		College / University	Combined Experience
8,8	Basic Economy & Finance	3		College / University	Combined Experience
Other					

<b>What is the ideal background for Technical Superintendents and Fleet Managers?</b>
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As below.
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Ideal background	Level	Program
Education 1	Bachelor/Ingeniør	Eng. Off
Education 2		
Education 3		
Seagoing Experience		5-10
Shoreside Experience		None
Other		

Background Superintendent / FM 1	Level	Program
Education 1	Bachelor/Ingeniør	Electrical
Education 2		
Education 3		
Seagoing Experience		2-5
Shoreside Experience		10+
Other		

Background Superintendent / FM 2	Level	Program
Education 1	Master/Sivilingenør	Tech. Maritime
Education 2	Bachelor/Ingeniør	Deck Off.
Education 3		
Seagoing Experience		5-10
Shoreside Experience		10+
Other		

Background Superintendent / FM 3	Level	Program
Education 1	College	Electrical
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

<b>Background Superintendent / FM 4</b>	<b>Level</b>	<b>Program</b>
Education 1	College	Eng. Off
Education 2	Other	Tech. Maritime
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

<b>Background Superintendent / FM 5</b>	<b>Level</b>	<b>Program</b>
Education 1	College	Eng. Off
Education 2		
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

<b>Background Superintendent / FM 6</b>	<b>Level</b>	<b>Program</b>
Education 1	College	Eng. Off
Education 2	College	Electrical
Education 3		
Seagoing Experience		10+
Shoreside Experience		10+
Other		

<b>Background Superintendent / FM 7</b>	<b>Level</b>	<b>Program</b>
Education 1	Bachelor/Ingeniør	Tech. General
Education 2		
Education 3		
Seagoing Experience		2-5
Shoreside Experience		10+
Other		

Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence
1,1	Class Systematics			
1,2	Ethical Conduct			
1,3	People Skills			
1,4	Leadership & Administration			
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)			
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)			
1,7	Corporate Finance / Budgeting			
2,1	Marine Materials			
2,2	Hull Structure			
2,3	Corrosion / Surface Protection			
2,4	Cargo Equipment			
2,5	Ship Equipment			
2,6	Equipment for Crew and Passengers			
2,7	Machinery Main Components			
2,8	Machinery Systems			
2,9	Ship Common Systems			
3,1	Navigational Procedures			
3,2	Cargo & Ballasting Operations			
3,3	Port Operations			
3,4	Voyage Economy & Planning			
3,5	Maintenance Administration			
3,6	Performance Monitoring			
3,7	Energy Optimization			
3,8	Machinery Operating Economy			
3,9	Catering Operations			
4,1	IMDG Code			
4,2	COLREG			
4,3	STCW			
4,4	ISM Code			
4,5	MARPOL			
4,6	Load Line Convention			
4,7	SOLAS			
4,8	ISPS			
4,9	ILO Regulations			
4,10	Maritime Law			
4,11	Flag State Regulations			
4,12	Port State Control			
5,1	Crew Employment Contracts			
5,2	Crew Recruitment			
5,3	Career Development			
5,4	Performance Appraisals			
6,1	Charter Party's			
6,2	Freight Contracts / Bill of Lading			
6,3	Vessel Sale / Purchase Contracts			
6,4	Newbuilding Site Team & Contract Manag.			
6,5	Drydocking / Repair Manag. & Contracts			
6,6	Lay-up / Scrapping Procedures			
7,1	Risk Management			
7,2	Proactive & Reactive Improvements			
7,3	Management of Change			
7,4	Job Safety Analysis & Tool Box Meetings			
7,5	Quality Assurance			
7,6	Health & Safety			
7,7	Management Systems			
7,8	Environmental Protection			
8,1	Vessel Accounting			
8,2	Vessel Budgeting & Budget Control			
8,3	Crew Accounting			
8,4	Insurance / Claims / Average Procedures			
8,5	Purchasing Procedures			
8,6	Supplier Selection Process			
8,7	Logistics / Supply Chain			

Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence
1,1	Class Systematics	4	3,6	College / University
1,2	Ethical Conduct	4,2	3,6	College / University
1,3	People Skills	4,2	3	College / University
1,4	Leadership & Administration	4,2	3,4	College / University
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)	3,4	3,8	College / University
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)	3,8	4	College / University
1,7	Corporate Finance / Budgeting	2,6	2,8	College / University
2,1	Marine Materials	3,4	3	College / University
2,2	Hull Structure	3,6	3	College / University
2,3	Corrosion / Surface Protection	3,8	3	College / University
2,4	Cargo Equipment	4,2	4	College / University
2,5	Ship Equipment	4,2	4	College / University
2,6	Equipment for Crew and Passengers	3,8	3,4	College / University
2,7	Machinery Main Components	4,2	4	College / University
2,8	Machinery Systems	4,2	4	College / University
2,9	Ship Common Systems	4	3,8	College / University
3,1	Navigational Procedures	2,6	2,6	College / University
3,2	Cargo & Ballasting Operations	3	3,6	College / University
3,3	Port Operations	2,2	3	College / University
3,4	Voyage Economy & Planning	2,4	2,4	College / University
3,5	Maintenance Administration	4,4	3,6	College / University
3,6	Performance Monitoring	4,2	2,8	College / University
3,7	Energy Optimization	4	2,8	College / University
3,8	Machinery Operating Economy	4	3,2	College / University
3,9	Catering Operations	2,8	2,4	College / University
4,1	IMDG Code	3	3	College / University
4,2	COLREG	2	2,2	College / University
4,3	STCW	3,2	3	College / University
4,4	ISM Code	4,6	3,6	College / University
4,5	MARPOL	4,2	3,4	College / University
4,6	Load Line Convention	3,4	3	College / University
4,7	SOLAS	4,4	3,8	College / University
4,8	ISPS	3,4	3	College / University
4,9	ILO Regulations	3,4	2,8	College / University
4,10	Maritime Law	3	2,8	College / University
4,11	Flag State Regulations	4	3,8	College / University
4,12	Port State Control	4,2	3,8	College / University
4,13	OVID	1,8	1,6	
5,1	Crew Employment Contracts	2	2,2	College / University
5,2	Crew Recruitment	2,2	2,6	College / University
5,3	Career Development	3,6	2,4	College / University
5,4	Performance Appraisals	3,8	2,6	College / University
5,5	Training	3,8	3	College / University
6,1	Charter Party's	1,4	1,6	College / University
6,2	Freigh Contracts / Bill of Lading	1,2	1,2	College / University
6,3	Vessel Sale / Purchase Contracts	3	2,6	College / University
6,4	Newbuilding Site Team & Contract Manag.	3,2	2,8	College / University
6,5	Drydocking / Repair Manag. & Contracts	4,8	3,6	College / University
6,6	Lay-up / Scrapping Procedures	3	2,8	College / University
6,7	Client Contracts	1,8	1,4	
7,1	Risk Management	4,4	3,2	College / University
7,2	Proactive & Reactive Improvements	4,4	3,8	College / University
7,3	Management of Change	3,8	2,6	College / University
7,4	Job Safety Analysis & Tool Box Meetings	4,4	3,4	College / University
7,5	Quality Assurance	4,4	3,8	College / University
7,6	Health & Safety	4,4	3,4	College / University
7,7	Management Systems	4,4	3,6	College / University
7,8	Environmental Protection	3,4	2,4	College / University
7,9	HSEQ Culture	4,6	3,2	College / University
8,1	Vessel Accounting	3,8	3,2	College / University
8,2	Vessel Budgeting & Budget Control	4,4	3,4	College / University
8,3	Crew Accounting	2,2	2,4	College / University
8,4	Insurance / Claims / Average Procedures	3,6	3,2	College / University
8,5	Purchasing Procedures	3,8	3,6	College / University
8,6	Supplier Selection Process	3,8	3,2	College / University
8,7	Logistics / Supply Chain	2,8	2,2	College / University
8,8	Basic Economy & Finance	3,2	2,6	College / University

Competence Areas		Comp. Importance	Actual Comp.	Preferred Source of Basic Competence
1,1	Class Systematics	4	3,6	College / University
1,2	Ethical Conduct	4,2	3,6	College / University
1,3	People Skills	4,2	3	College / University
1,4	Leadership & Administration	4,2	3,4	College / University
1,5	Seagoing Exp. - Deck Off. (STCW Comp.)	3,4	3,8	College / University
1,6	Seagoing Exp. - Eng. Off. (STCW Comp.)	3,8	4	College / University
1,7	Corporate Finance / Budgeting	2,6	2,8	College / University
2,1	Marine Materials	3,4	3	College / University
2,2	Hull Structure	3,6	3	College / University
2,3	Corrosion / Surface Protection	3,8	3	College / University
2,4	Cargo Equipment	4,2	4	College / University
2,5	Ship Equipment	4,2	4	College / University
2,6	Equipment for Crew and Passengers	3,8	3,4	College / University
2,7	Machinery Main Components	4,2	4	College / University
2,8	Machinery Systems	4,2	4	College / University
2,9	Ship Common Systems	4	3,8	College / University
3,1	Navigational Procedures	2,6	2,6	College / University
3,2	Cargo & Ballasting Operations	3	3,6	College / University
3,3	Port Operations	2,2	3	College / University
3,4	Voyage Economy & Planning	2,4	2,4	College / University
3,5	Maintenance Administration	4,4	3,6	College / University
3,6	Performance Monitoring	4,2	2,8	College / University
3,7	Energy Optimization	4	2,8	College / University
3,8	Machinery Operating Economy	4	3,2	College / University
3,9	Catering Operations	2,8	2,4	College / University
4,1	IMDG Code	3	3	College / University
4,2	COLREG	2	2,2	College / University
4,3	STCW	3,2	3	College / University
4,4	ISM Code	4,6	3,6	College / University
4,5	MARPOL	4,2	3,4	College / University
4,6	Load Line Convention	3,4	3	College / University
4,7	SOLAS	4,4	3,8	College / University
4,8	ISPS	3,4	3	College / University
4,9	ILO Regulations	3,4	2,8	College / University
4,10	Maritime Law	3	2,8	College / University
4,11	Flag State Regulations	4	3,8	College / University
4,12	Port State Control	4,2	3,8	College / University
5,1	Crew Employment Contracts	2	2,2	College / University
5,2	Crew Recruitment	2,2	2,6	College / University
5,3	Career Development	3,6	2,4	College / University
5,4	Performance Appraisals	3,8	2,6	College / University
5,5	Training	3,8	3	College / University
6,3	Vessel Sale / Purchase Contracts	3	2,6	College / University
6,4	Newbuilding Site Team & Contract Manag.	3,2	2,8	College / University
6,5	Drydocking / Repair Manag. & Contracts	4,8	3,6	College / University
6,6	Lay-up / Scrapping Procedures	3	2,8	College / University
7,1	Risk Management	4,4	3,2	College / University
7,2	Proactive & Reactive Improvements	4,4	3,8	College / University
7,3	Management of Change	3,8	2,6	College / University
7,4	Job Safety Analysis & Tool Box Meetings	4,4	3,4	College / University
7,5	Quality Assurance	4,4	3,8	College / University
7,6	Health & Safety	4,4	3,4	College / University
7,7	Management Systems	4,4	3,6	College / University
7,8	Environmental Protection	3,4	2,4	College / University
7,9	HSEQ Culture	4,6	3,2	College / University
8,1	Vessel Accounting	3,8	3,2	College / University
8,2	Vessel Budgeting & Budget Control	4,4	3,4	College / University
8,3	Crew Accounting	2,2	2,4	College / University
8,4	Insurance / Claims / Average Procedures	3,6	3,2	College / University
8,5	Purchasing Procedures	3,8	3,6	College / University
8,6	Supplier Selection Process	3,8	3,2	College / University
8,7	Logistics / Supply Chain	2,8	2,2	College / University
8,8	Basic Economy & Finance	3,2	2,6	College / University



Education Program	Education Facility
Offers deck officer on Fagskole level.	AUSTEVOLL MARITIME FAGSKULE, ph. +47 56182000, post.fia@post.hfk.no, http://fia.hfk.no
Offers deck&engine officer on Fagskole level.	BERGEN MARITIME FAGSKOLE, ph. +47 55337500, post.bmv@post.hfk.no, www.bergenmaritime.no
Offers deck&engine officer on Fagskole level.	BODIN MARITIME FAGSKOLE, ph. +47 75651000, post.bodin@nfk.no, www.bodin.vgs.no
Offers deck&engine officer on Fagskole level.	FAGSKOLEN I VESTFOLD, ph +47 33079000, fagskolen@vfk.no, www.fiv.no
Offers deck&engine officer on Fagskole level.	FAGSKOLEN I ÅLESUND, ph. +47 70161700, postmottak@fials.no, www.amtf.no
Offers deck&engine officer on Fagskole level.	FAGSKOLEN I KRISTIANSAND (Kvadraturen skolesenter) ph. +47 38077300, fagskolen@vaf.no, www.fagskolen.net
Offers deck&engine officer on Fagskole level.	FAGSKOLEN I KRISTIANSUND, ph. +47 71570500, kristiansund.vgs@mrfylke.no, www.krsund.vgs.no
Offers deck&engine officer on Fagskole level.	FAGSKULEN I SOGN OG FJORDANE avd. Måløy , ph.+47 57849100, postmottak.fagskolen@sfj.no, www.fagskolen.no
Offers deck&engine officer on Fagskole level.	FAGSKOLEN I ROGALAND, AVD. KARMSUND, MARITIME FAG, Ph.+47 52710100, Karmsund-vgs@rogfk.no, www.karmsund.vgs.no
Bachelor Nautikk	HØGSKOLEN STORD HAUGESUND (HSH), Ph. +47 53491300, postmottak@hsh.no, www.hsh.no
Bachelor Nautikk, Master Skipsdesign, 1 år Shippingledelse	HØGSKOLEN I ÅLESUND. Ph+47 70161200,postmottak@hials.no, www.hials.no
Master Maritime Management, Bachelor Nautikk, Skipsfart&Logistikk, Marinteknisk Drift	HØGSKOLEN I VESTFOLD, ph.+47 33031000, postmottak@hive.no, www.hive.no
Offers deck officer on Fagskole level.	NORDKAPP MARITIME FAGSKOLE OG VIDEREGÅENDE SKOLE , ph.+47 78476010, nordkappvgs@ffk.no, www.nordkapp.vgs.no
Offers Bachelor Deck & engine, Elektro/Aut, EI/data w/ military leadership focus.	SJØKRIGSSKOLEN (the Royal Norwegian Naval Academy) ph.+47 55505005, post@studieguiden.no, www.mil.no/sjo/sksk
Offers deck&engine officer on Fagskole level.	TRONDHEIM FAGSKOLE, ph.+47 73870500, postmottak.ladejarlen@stfk.no, www.fagskole.no
Offers deck&engine officer on Fagskole level.	TROMSØ MARITIME SKOLE- og HAVARIVERNSSENTER , ph.+47 77793100, hvs.kurs@troms.vgs.no, www.tos-mar.vgs.no
Bachelor Nautikk	UNIVERSITETET I TROMSØ (UIT), ph.+47 77660302, postmottak@iis.uit.no, www2.uit.no
Bachelor Nautikk	UNIVERSITETET I Nordland



MANAGING RISK

## Maritime kurs

Våre maritime kurs blir holdt ved DNVs kontorer i Bergen og Oslo. Våre kursforelesere er senior personell eller teknisk personell med lang eller bred erfaring innen sitt fagområde. Skulle din bedrift ønske et av kursene holdt internt hos dere, kan vi også koordinere dette.

Kursdokumentasjonen er i de fleste tilfeller på engelsk og kursspråket er på norsk eller engelsk. På denne siden er det listet opp en oversikt over kursene vi holder i 2013 med beskrivelse på engelsk. Under hvert kurs vil du finne kontaktinformasjon og påmeldingsinformasjon. Endringer i vårt kursprogram kan forekomme, vår kursoversikt vil bli holdt løpende oppdatert. Vi ber om at deltakerne setter seg inn i våre generelle kursbetingelser som finnes til høyre.

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### Analyse av ulykker og nesten-ulykker/ Managing Marine Incident Investigation

Kursbeskrivelsen er kun på engelsk



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### Docking kurs/Docking course

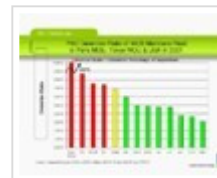
Kursbeskrivelsen er kun på engelsk - Course description in English only!



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### Havnestatskontroll/ Port state control: Avoid Deficiencies & Detention - 2 days

Kursbeskrivelsen er kun på engelsk - Course description in English only!



## Implementering av ISM koden/ISM Course

Kursbeskrivelsen er kun på engelsk. Course description in English only.

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### Inspeksjon av nybygg under oppføring/ Newbuilding Site Supervision Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



### Kurs for rederiinspektører/ Superintendent Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



### Kurs for rederiinspektører - MOU/ MOU Superintendent Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



### Maritime Labour Convention (MLC 2006) Kurs/Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



### Maritim internrevisjon/Internal Auditor course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



## Risk Management and Incident Investigation Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!

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## Skrogbesiktelser/Hull Inspection Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



## Skrogkurs/Hull Course

Kursbeskrivelsen er kun på engelsk - Course description in English only!



Nedlastninger og andre linker- Useful downloads and other relevant links

Last ned - Download

[Maritime Training Schedule 2013](#)

Hotels nearby Det Norske Veritas at Høvik (Oslo)

Refer to

[Thon Hotel Oslofjord, Sandvika](#)

[Quality Hotel Expo, Fornebu](#)

Hotels in Bergen

Refer to

[Rica Hotel Bergen](#)

Course and general conditions

Refer to

[Course Condition](#)

# Courses

Marine training you can trust. We deliver tailored, relevant courses that feature real life scenarios – training that's shaping businesses and the future of the marine industry.

Only top quality training can keep your people up to date with the latest developments in our constantly moving industry. We deliver tailored, relevant courses featuring real life scenarios – training that's shaping businesses and the future of the marine industry. With a global community of experts dedicated to quality and safety, we offer a level of choice few can match.

## Marine training courses

- [Classification and statutory requirements](#)

Gain a solid understanding of the role, workings and requirements of a classification society and its interface with IMO when applying statutory regulations on behalf of flag administrations.

- [Hull inspection - damage and repair](#)

This three-day course provides the skills required to help you understand the different types of hull defects and damage that occur in ship structures. Benefit from learning the reliable inspection techniques that lead to a better understanding of the condition of your ship and how you can help protect your assets.

- [Hull inspection - distance learning course](#)

This comprehensive CD-ROM based distance learning course will improve your ability to carry out hull inspections. The training material will enable your ship's staff to make a more effective contribution to the maintenance and reporting of the condition of the ship's hull structure. It is ideal for incorporation into your existing training. Benefit from learning the reliable inspection techniques that lead to a better understanding of the condition of your ship and how you can help protect your assets.

- [Electrical and control engineering](#)

Modern ships are increasingly dependent upon the electrical and control engineering installations for their operation. There is also greater use and reliance on complex computer-based systems. It is therefore essential that seagoing and shore-based staff have a good appreciation of such systems, ensuring that they are maintained in an efficient operational and safe condition



- [Ship new construction](#)

Understanding modern ship building and the processes involved.

- [Introduction to naval classification](#)

Naval classification provides a structured audit process through design, construction and operation of naval vessels. The constraints of naval design and the absence of some commercial support processes bring different challenges that need to be understood if the benefits are to be fully realised.

- [Ship emergency response service \(SERS\)](#)

Whether you have already been involved in a casualty or not, you will know that in order to reduce the risks of loss, damage and harm to life, business, the environment and your company's reputation, your staff need to respond effectively and make the right decisions quickly and confidently.

- [Ballast water management](#)

The potential for ballast water discharge to cause harm has been recognised by the International Maritime Organization (IMO) and many individual countries around the world. To comply with national and forthcoming IMO legislation, ships are required to manage their ballast and possess a plan that provides safe and effective procedures for ballast water management.

- [A practical approach to port state control](#)

This one day Lloyd's Register course is aimed at those who require practical advice in preparing for a Port State Control Inspection including crew member behaviour during an inspection. This can reduce the risk of delays and detention through improvements in operational procedures and increased crew member knowledge.

- [Surveying an oil tanker \(DVD or VHS video\)](#)

This package consists of a two-part video and booklet. It shows a detailed inspection by two surveyors from Lloyd's Register as they survey a double hulled tanker.

- [The Essential Dry-Docking Course](#)

This three-day course will provide the essential information needed to successfully prepare, plan, and execute a comprehensive Dry-Docking.

- [Shaft alignment](#)

Understand shaft alignment and the processes involved. This two-day course will cover key elements of shaft alignment theory and practice. It will also highlight the recent developments in shaft alignment analytical methods.



- [Marine EMS auditing for ISM auditors](#)

This specialist two-day course is aimed at qualified ISM auditors and will train them to undertake internal audits against the ISO 14001 international standard.

- [Marine EMS auditor/lead auditor](#)

This five-day course represents the highest standard of formal training leading to fully qualified lead auditor status.

- [Marine EMS auditor/lead auditor conversion](#)

This three-day course is aimed at qualified auditors and provides additional training in environmental management system (EMS) auditing. It is similar to our five-day Marine EMS Auditor/Lead Auditor course, but excludes the two-day auditing element.

- [Marine internal EMS auditor](#)

This three-day course helps marine companies understand the requirements of the ISO 14001 international standard and trains staff to carry out the essential internal audit requirements of a certified environmental management system (EMS).

- [ISO 14001 Appreciation and interpretation](#)

This one-day course provides a basic understanding of the ISO 14001 international standard and environmental management systems (EMS), and demonstrates how they are applied within the marine industry. The course is recommended for anyone who wants to understand the basic principles and concepts involved and how they apply to ships.

- [ISPS internal auditor](#)

This three-day course, which is a combined International Ship and Port Facility Security (ISPS) familiarisation and internal security audit course, will help you develop a practical approach to the interpretation and application of the ISPS Code.

- [ISPS Code: Company and ship security officer \(CSO/SSO\) training](#)

The ISPS Code has far-reaching implications for personnel assigned responsibilities for the security and safety of your ships. The requirements for a company and ship security officer, and their roles and responsibilities, are important considerations. We understand the complexities of these requirements and provide tailored training to help you implement security management within your company.

- [ISPS Code: Company Security Officer \(CSO\) Training](#)

This four-day training course will provide company security officers with the training necessary to meet their obligations under the International Ship and Port Facility (ISPS) Code. Adopting practical approaches to interpreting and implementing measures will help ensure compliance with maritime security requirements. The course is compliant with current IMO requirements.

- [ISM and the Lead Auditor](#)

This course covers the ISM Code, management systems and marine safety management combined with the principles and practices of modern auditing. Consideration of shipboard operations is an intrinsic part of the course, and is fundamental to the case studies and several of the exercises.

- [ISM Code Internal Auditor](#)

This two-day course, which is a combined ISM familiarisation and internal audit course, will help you develop a practical approach to the interpretation and application of the International Safety Management (ISM) Code.

- [ISM Code and port state control](#)

Understanding how port state control inspections relate to the International Safety Management (ISM) Code will help you diminish the likelihood of your ships being detained by the port state control authorities.

- [Risk management and incident investigation](#)

This two or three-day interactive course is a must for all those responsible for safety, whether they are based on land or at sea. It shows them how to carry out operational risk assessments and incident investigations based on methodologies used by the UK's Maritime and Coastguard Agency (MCA) and the United States Coast Guard (USCG).

- [Introduction to LPG carriers](#)

Understanding the modern LPG Ship. This comprehensive introduction begins by outlining the growing importance of LPG, from growth in demand, to future prospects. Upon completion of this course, delegates will have obtained knowledge on design and equipment requirements for LPG tankers, cargo containment and cargo handling systems.

- [Introduction to liquefied natural gas](#)

Understanding the modern LNG Ship. This comprehensive introduction begins by outlining the growing importance of LNG, from growth in demand, to future prospects.



- [Liquefied natural gas training](#)

Understanding the modern LNG Ship. Starting with a comprehensive introduction to the growing importance of LNG, you will learn the principles of modern LNG ship design and construction, their containment systems, the principles of LNG cargo operations and associated cargo systems.

- [Understanding the human element](#)

The human element is widely accepted to be the greatest source of operational risk in modern shipping. This course will show ship owners and operators how to recognise and address human element issues within their organisation.

- [Leading the fleet](#)

The programme focuses on the key leadership and people management skills needed to provide senior managers with tools to develop motivated teams, provide guidance on efficient utilisation of personnel, encourage behavioural change and develop effective communication.

- [Leading the ship](#)

The programme focuses on the key leadership and people management skills, needed to provide managers with tools to develop motivated teams, ensure effective communication, and encourage behavioural change.

- [Leading the shore based team](#)

The programme focuses on the key leadership and people management skills needed to provide shore based managers with tools to create a real effectiveness in people terms for the fleet, develop motivated teams and develop effective communication to enhance safe operation.

- [Train the Trainer](#)

This course will equip you with the foundation trainer skills that will enable them to confidently deliver internal or external Marine training courses.

- [Introduction to non-destructive examination](#)

Learn the basics of NDE methods and techniques.

- [Mooring equipment](#)

Whether it is a ship, offshore floating platform or permanently moored structure, the ultimate safety of the installation relies on the integrity of the anchors, chain cables and associated equipment. Lloyd's Register has long understood this and for over 200 years has been at the forefront of design review, new materials, inspection, testing and certification.



- [ILO Maritime Labour Convention 2006 \(MLC 2006\) training](#)

This two-day Lloyd's Register course is aimed at all of those who may be involved in the creation and implementation of policies and procedures required for compliance with the ILO Maritime Labour Convention 2006 requirements and application.

- [ILO MLC, 2006 Internal Inspectors Course](#)

This three-day Lloyd's Register course is aimed at all those who may be involved in the creation and implementation of policies and procedures required for compliance with the ILO Maritime Labour Convention 2006 requirements and application. You will benefit from an understanding of the maritime working and living conditions, including technical and operational aspects covered by the MLC, 2006.

- [Materials Welding NDE - The Basics](#)

Basic Principles of Materials, Welding & NDE for Existing Ships

- [ISM Code and the Designated Person Ashore](#)

This two-day course has been designed to provide the knowledge and skills required in accordance with the guidance and recommendation given by the IMO MSC-MEPC.7/circ.6 (19 October 2007).

- [Practical Approach to Ship Surveys](#)

Practical advice on ship survey planning and preparation.

- [Machinery Damage and Repair - Modules 1 - 3](#)

Gain in-depth knowledge of the most common machinery problems encountered in the marine environment. These three Machinery, Damage and Repair workshops will enable you to make early and confident assessments of machinery damage which will help to achieve timely repairs in accordance with classification rules and regulations for ships.

- [EMS Practical Implementation Course](#)

This two day course will provide an awareness of how human activities affect the sea and how we can work in a responsible way. It meets the requirements of the revised STCW Code (June 2010). It follows the model course requirements as accepted by IMO.



- [Superintendent Training Programme](#)

In today's maritime industry there is an ever increasing breadth of subject areas about which Superintendents must not only be aware but must have an understanding, so that reasoned decisions can be made quickly. Lloyd's Register's Superintendent training programme provides a solid foundation for developing experience for Superintendents.

- [Tanker Vetting and Inspection](#)

This two day Tanker Vetting and Inspection course is aimed at developing an appreciation of the key practical issues for anyone involved with Vetting and Tanker Inspections.

- [Ship Energy Management](#)

The aim of this Lloyd's Register Ship Energy Management training course is to provide delegates with an introduction to the key principles of ship energy management within the marine industry and introduce the tools that can assist in reducing energy usage.

- [Superintendent Training Programme](#)

In today's maritime industry there is an ever increasing breadth of subject areas about which Superintendents must not only be aware but must have an understanding, so that reasoned decisions can be made quickly. Lloyd's Register's Superintendent training programme provides a solid foundation for developing experience for Superintendents.

- [Presentation Skills](#)

This one-day course will equip you with foundation skills to enhance your presentations and make you more confident and professional in your delivery.