Course Description	

Course Outline	The following elements will be covered: Vessel performance management systems, data collection and interpretation, calculation and documentation of emissions, key performance indicators in relation to environmental performance, key elements of the green regulatory process.
	
	The course consists in <u>five</u> main learning streams as core elements:
	
	1. Data Processing
	
	- Data is a resource that can be used for calculations and models. This element is focused on the quality and analysis of data.
	
	2. Calculation and documentation of emissions
	
	   - This element illustrates the usages of data in practice and introduces the EU MRV and the IMO DCS.
	
	3. Vessel performance management systems
	
	   - VPMS concepts and structures are explored by decomposition of systems as well as creating systems.
	
	4. The role, design and validation of Key Performance Indicators (KPIs)
	
	   - The development of performance indicators and identification of key performance indicators is explored.
	
	5. The development of regulation and political structures in the maritime industry
	
	   - This element helps to understand the possibilities to influence and drive green regulation

Learning Outcome	The participants will be able to • analyze the environmental performance of vessels or fleets on the basis of interpretation of sets of data. • assess and sort data sets, understand their validity and reference them to comparable data. • initiate action on improvements on environmental performance in the operational context.

| | • understand the impact of regulation on the operational performance of vessels and the expectations behind regulations.
• participate in discourses that relate operational performance and regulation.
• place policy measures within the broader regulatory context and compare regional, global and self-regulation as possible tools..
• suggest improved regulation that would benefit the environment while maintaining commercial imperatives.

Knowledge:
1. Recognize and identify correlation between events and metrics in data collection
2. Describe methods to clean data e.g., Data Validation
3. Identify the structures of performance indicators
4. Understanding of maritime regulation in environmental and climate subjects

Skills:
5. Assess data quality
6. Examine a dataset by combining analytic and operation models
7. Develop and improve KPIs
8. Communicate current performance as well as performance goals to motivate change
9. Participate actively in regulatory discourse of Green Shipping

Responsibility and autonomy:
10. Determine and choose key performance indicators to increase specific vessel's performance
11. Optimize vessel's performance by creating change using data driven methods
12. Optimize performance of a fleet of vessels using VPMS.
13. Support development of maritime regulation in the field of Green Skills |
| Teaching methods | Based on the reality of an experienced officer and the teamwork, he or she will have been part of both the assessment and learning activities should be group-centered. Assuming that participants will be shore-based, participants need to reflect the bridge between seagoing experience, commercial and operational needs and regulatory frameworks.

Lecturers should determine teaching methods according to group size and composition but generally move from lecture type |

	sessions (first parts of lessons # 1, 4, 5) to interactive discussions and collaborative group work. Participants should be involved through the flipped-classroom method and bring in their practical and operational experience – and possibly data from vessel performances. Green Skills are an evolving subject and will be dealt with in a variety of ways over different vessel types. The majority of the learnings will be acquired through discussion and practical application in cases. Case studies are particularly apt for this course. They are based on real-life or fictitious scenarios presented to the participants, who are required to analyze the case and to address the target issue or draw conclusions. Data and data management becomes thus part of daily business and may enhance understanding of specific managerial questions arising from data analysis. After each topic has been delivered, a self-assessment quiz should be completed by the student. This is to ensure that the students are aware of their level of understanding and to motivate them to study. With the experienced seafarers, audio-visual presentations can serve as a form of reminder and instruction used to present informational or instructional content. They should not be a substitute for another kind of presentation, such as a demonstration or lecture. In this study group, audio-visual information can serve as "glue" between participants to refer to their common experience at sea.
Teaching material	Most importantly, data material will be needed in this course. Students are encouraged to bring their own data. Thetis and other data bases should be used for most up-to-date material. In the lesson examples and the case example, a simulator is used. Further readings are provided in appendix 4.
Assessment/exam	Each topic should be followed by a self-assessment quiz as described under teaching methods. An example of such a quiz is provided for lesson 1 example in appendix 3. The final assessment is the evaluation of presentation based on a case, accompanied by a report. An example of a case is provided in appendix 2.

Evaluation

Course Review	Students will be provided with an opportunity to complete a short survey at the end of the course to evaluate the delivery and content of the package. Lecturers will review the outcomes of the survey and will provide their reflections, with possible actions for developers/deliverers to consider. Upon completing this evaluation, individual lecturers will carry out module reflection, also according to the template provided.