

Course Title	Ship Performance at sea				
Course Code	MAEN504				
Course Type	Required				
Level	Master's Level				
Year / Semester	1 / 1				
Teacher's Name	Dr. Elias Chatzidouros, CEng. Rod Beams, Dr. Marios Fyrrillas, Dr. Marios Mastrokalos				
ECTS	6	Lectures / week	2	Laboratories / week	0
Course Purpose and Objectives	The aim of this course is to provide special knowledge of ship performance at sea.				
Learning Outcomes	<p>By the end of the course students will be able to:</p> <ul style="list-style-type: none"> <li>• Categorize and compare metocean and environmental conditions and analyze their influence on the marine operation.</li> </ul>				
Prerequisites	MAEN500 pass, only for those not holding a degree in marine related fields (no background in shipping).	Required			
Course Content	<ul style="list-style-type: none"> <li>• Metocean and environmental conditions and their influence on the marine operation. Overview of the determination of metocean conditions (meteorological and oceanographic) and the influence of wave, wind, tide and current on marine operations. Marine ecology and its impact on marine operations.</li> </ul>				
Teaching Methodology	The course will be delivered through lectures, discussions, and presentations augmented by consultations with staff during office hours, home and library study.				
Educational activities encourage the active participation of students in the learning process	<p>During the course attending, the students will be encouraged to construct and present written semester assignments concerning aspects like:</p> <ul style="list-style-type: none"> <li>• analysis of real marine incidents affected by the unusual metocean conditions and determine the physical parameters involved.</li> </ul>				
Recommended laboratory exercises/tests that students could attend in FU laboratories and/or in collaborating ship companies	<p>Parallel with the course attending, the students will be recommended to attend seminars co-organized by the FU and the collaborating ship company, concerning aspects like:</p> <ul style="list-style-type: none"> <li>• real marine incidents affected by the unusual metocean conditions</li> </ul>				
Recommended synergies between	The students will be encouraged to create and present papers in marine focused conferences, based on their semester assignments, in order to				



teaching and research that could provide the students engagement in research activities	produce the base of their MSc Dissertation, concerning aspects like: <ul style="list-style-type: none"> <li>• real marine incidents affected by the unusual metocean conditions</li> </ul>
Bibliography	<p><b>Textbooks:</b></p> <ul style="list-style-type: none"> <li>• Wells, N., (2012). The atmosphere and ocean: a physical introduction. Wiley-Blackwell.</li> <li>• Andersson, K., Brynolf, S., Lindgren, J.F., (2016). Shipping and the Environment: Improving Environmental Performance in Marine Transportation. Springer-Verlag.</li> <li>• Verron, J., Chassignet, E.P., (2006). Ocean weather forecasting: an integrated view of oceanography. Springer.</li> <li>• U.S. Department of Commerce, (2004). Marine Surface Weather Observations (National Weather Service observing handbook No. 1).</li> <li>• Burch, D., (2008). Modern marine weather.</li> </ul> <p><b>Other Reading:</b></p> <ul style="list-style-type: none"> <li>• Hughes, C.N., (1996). Ship Performance: Technical, Safety, Environmental and Commercial Aspects. Michigan University.</li> <li>• Sloane, E., (2005). Eric Sloane's Weather Book</li> <li>• Roth, H., (2008). Handling Storms at Sea: The 5 Secrets of Heavy Weather Sailing.</li> <li>• Naranjo, R.J., (2015). The art of seamanship manual: evolving skills, exploring oceans, and handling wind, waves, and weather. McGraw- Hill.</li> </ul> <p><b>Journals:</b></p> <ul style="list-style-type: none"> <li>• IMechE Journal of Engineering for the Maritime Environment (JEME)</li> <li>• IMarEST Journal of Marine Engineering and Technology (JMET)</li> <li>• Journal of Marine Science and Technology</li> <li>• SNAME and RINA journals</li> <li>• International Journal of Marine Science; Richmond</li> <li>• Marine Technology and SNAME News; New York</li> <li>• Marine Technology Society Journal; Washington</li> <li>• Australian Journal of Maritime and Ocean Affairs; Abingdon</li> <li>• International Journal of Maritime History</li> <li>• Aegean Review of the Law of the Sea and Maritime Law. Springer.</li> <li>• Maritime Studies; Canberra</li> <li>• Naval Engineers Journal. Wiley</li> </ul>
Assessment	Final Exam: 60% Course Work/Assignment: 40%
Language	English