

Course Title	Safety and Risk Management				
Course Code	MAGC-402				
Course Type	Required				
Level	1 st Cycle				
Year / Semester	3 rd Year, Fall Semester				
Teacher's Name	Captain. Dr. Andreas Frangos				
ECTS	5	Theory	Laboratory	Simulation	Tutorial
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Course Purpose and Objectives	<p>The main objectives of the course are to:</p> <ul style="list-style-type: none"> • Ensure a thorough knowledge and understanding of the rules, regulations and recommended practices for safety management in maritime transport • Understand the basic concepts, principles and terms of risk assessment and safety management; • Ensure understanding of the IMO's Formal Safety Assessment process. • Provide knowledge of the basic issues relating to the improvement of safety in the maritime industry. 				
Learning Outcomes	<p>After completion of the course students are expected to be able to:</p> <ul style="list-style-type: none"> • Explain the history of safety development in maritime transport in reactive and proactive safety improvement approaches. • Organize and apply basic principles, concepts and terms of risk assessment and safety management within the maritime transport context. • Classify and select theories and methods for accident analysis and risk analysis as approaches to safety improvement in the maritime industry. • Compose and perform accident analysis from accident documentation to analytical explanation of possible causation processes, and document into an accident report. • Evaluate given accident reports as basis for risk comprehension. • Classify traffic based risk assessment models, and perform traffic based risk assessment analysis of a set of fairway situations. • Classify and perform basic estimation of material damage consequences after contact accidents. • Organize and perform a risk analysis process according to IMO's Formal Safety Assessment process, including choice and use of appropriate 				

	theories and methods for hazard identification, risk assessment, risk control measure, and cost benefit assessment.				
Prerequisites	None	Required	None		
Course Content	<ul style="list-style-type: none">• The risk concept. Risk picture. What is an accident? Accident statistics.• Preventive and ameliorating measures.• Risk objectives, data and risk acceptance criteria.• Maritime traffic models; probability of grounding and collision. Consequence estimation. Risk analysis methods: Hazard analysis, FTA, ETA, FMECA, HazOp. Human reliability; error mechanisms and modelling approaches.• Risk control measures and options. Cost-benefit analysis of risk control measures. Formal safety assessment (FSA) and risk based ship design.• Accident analysis; analysis and modelling of ship casualties. Analysis and modelling of ship accidents. Catastrophe behaviour, evacuation and rescue.• Regulation and official control of maritime safety. National and international control authorities. The ISM Code – the International Safety Management Code.• Auditing, Marine Insurance; risk analysis and risk management.				
Teaching Methodology	Lectures, Directed and Background Reading, Case Study Analysis and Discussion, Academic Paper Discussion In-class Exercises, Student-led Presentations				
Bibliography	Required Textbooks				
	Authors	Title	Publisher	Year	ISBN
	Rausand, M	Risk Assessment - Theory, Methods and Applications	John Wiley & Sons, Inc	2011	
	Recommended Textbooks/Reading				
	Authors	Title	Publisher	Year	ISBN
	Chengi Kuo	Managing Ship Safety	LLP	1998	
	Kristiansen S.	Maritime Transportation: Safety Management and Risk Analysis	Routledge	2004	
Assessment	Coursework, Case studies & Projects, Mid-Term Exam, Final Exam				
Language	English				