Course Code	Course Title	Credits (ECTS)
SHIP-522	Safety & Risk Management	10
Department	**Semester**	**Prerequisites**
Accounting	Fall, Spring	None
Type of Course	**Field**	**Language of Instruction**
Required	Shipping & Logistics Management	English
Level of Course	**Year of Study**	**Lecturer**
2nd Cycle	1st	Dr. Ioannis Bakouros
Mode of Delivery	**Work Placement**	**Co-requisites**
Face to face	N/A	None

Objectives of the Course

The main objectives of the course are to:

- 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 safet 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:

After completion of the course students are expected to be able to:

- 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.

Course Contents

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.

Learning Activities and Teaching Methods

Lectures, Directed and Background Reading, Case Study Analysis and Discussion, Academic Paper Discussion In-class Exercises, Student-led Presentations

Assessment Methods

Coursework, Case studies & Projects, Mid-Term Exam, Final Exam

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	