COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Naval Architecture		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	NAOME1333	**SEMESTER**	6th
COURSE TITLE	**SHIP ENGINE ROOM SYSTEMS AND EQUIPMENT**		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**CREDITS (ECTS)**
Lectures		4	5
COURSE TYPE *general background, specialbackground, specialised general knowledge, skills development*	Specialised		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/NAFP108/		

(2) COURSE GOALS / LEARNING OUTCOMES

This course covers the key aspects of systems and equipment used in the engine room of ships and floating structures. The course aims at introducing the students to the main structural and functional characteristics of auxiliary machinery and systems of the ship's engine room. The course also familiarizes students with the supporting networks of the ship and their design. The course complements the course of MARINE ENERGY SYSTEMS AND SHIP PROPULSION PLANTS, by describing in detail all the systems supporting the operation of the ship's main and auxiliary (power generator) engines.

(3) COURSE CONTENT / SYLLABUS

1. Basic principles of design of hydraulic networks (piping dimensioning, pump selection, simulation of functional characteristics).
2. Main Engine Networks: Fuel (fuel oil, natural gas), coolant, lubricant, compressed air, steam, exhaust and combustion air.
3. Marine Networks: Ballast, Bilge, Central Cooling.
4. Ship cargo networks.
5. Mechanical ventilation networks.
6. Steam networks for the heating of tanks and pipelines: steam pipe networks, calculations of pressure drop, heat, steam traps, manufacturing of networks.
7. Fuel Tanks (Liquid and Gaseous) and Lubricants.
8. Fire-fighting networks and systems.
9. Processing systems (centrifugal separation, filtration, etc.) of ship fuels and lubricants.
10. Treatment, recirculation and preheating of water for use in steam boilers, safety regulations for steam generators, determination of deionization water characteristics at the

various stages of Heat exchangers operation.
11. Compressed air production and storage systems.
12. Liquid natural gas storage and management systems.
13. Systems for desulphurization and denitrification of exhaust gases (SCR, Scrubbers).
14. Water Ballast Management Systems
13. Case studies and design of engine room networks.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc.	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, communication with students	• Use of ICT in teaching. • Support learning through the electronic e-class platform.
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non- directed study according to the principles of the ECTS*	

Activity	*Workload (hours)*
Lectures	26
Exercises on theory	26
Case study essay	39
Personal study	52
Course total	**143**

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*	i) Written final examination (70%) that includes solving problems related to the theory. ii) Evaluation of technical group work reports (30%). The grade corresponding to each technical report will be available to the student on the e-class platform.

(5) ATTACHED BIBLIOGRAPHY

1. Taylor D.A., Introduction to Marine Engineering, Elsevier
2. McGeorge, H.G., Marine Auxiliary Machinery, BH
3. Harrington R.L., Marine Engineering, εκδόσεις SNAME