

Learning Unit: IMM0702 – Green Ship Design and Technology

Semester	Frequency	Duration	Type	ECTS points	Student workload
3	Semesterly	1 Sem.	Elective	6	150 hours, comprising contact hours: 6 h self study: 144 h

Prerequisites for participation	Utility	Examination type and duration (Prerequisite for transferal of ECTS)	Teaching and learning methods	Unit coordinator
-	M.Sc. IMM	Course achievement (Studienleistung): computer test; Examination (Prüfungsleistung): home assignment	Course book, self study, discussion in bulletin board	Prof. Dr. Laurentiu Chiotoroiu

Learning objectives

Upon completion of this learning unit, students are able to ...

- justify the role of hull design optimization in terms of fuel savings and overall hydrodynamic performance of a vessel.
- describe the components of ship powering and propulsion units and machinery and explain their basic principles of operation and practical performance capabilities.
- analyse the power generation and distribution on board ships.
- judge the benefits of advanced propeller- and rudder design in improving the propulsive efficiency and the fuel and energy savings.
- compare and analyse the impact of shipboard emissions to air pollution and modern technologies design to control and reduce the gas emissions.
- explain the purpose and meaning of ship hull cleaning and justify the importance of hull coatings to ship eco-efficiency.
- determine and prioritise operational measures that can reduce the fuel consumption.
- reframe and transform existing management solutions to recommend environmentally friendly measures.

Unit contents

- Energy efficient ship design – Hull optimisation
- Energy – saving devices
- Efficient machinery technologies
- Technologies to reduce and control the gas emissions
- Underwater coatings and hull cleaning
- Energy efficient ship operation – Trim optimisation

Lectures

Lecturer(s)	Name of learning unit	Weekly lessons
Prof. Dr. Laurentiu Chiotoroiu	Green Ship Design and Technology	-