

Faculty of Maritime Studies / MARINE ELECTRICAL ENGINEERING / ELECTROMAGNETIC COMPATIBILITY OF MARINE EQUIPMENT

Course:	ELECTROMAGNETIC COMPATIBILITY OF MARINE EQUIPMENT			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
11264	Mandatory	6	6	2+0+1
Programs	MARINE ELECTRICAL ENGINEERING			
Prerequisites	No prerequisites for course enrolment and attending.			
Aims	Getting basic knowledge on sources, ways of transmission and impacts of electromagnetic interference on electrical and electronic ship (marine) devices. Getting acquainted with the corresponding standards, measurements and procedures for achieving electromagnetic compatibility.			
Learning outcomes	Upon successful completion of the course, the student will be able to: - explain fundamental terms of electromagnetic compatibility; - be familiar with sources and ways of transmission of electromagnetic interference; - understand and explain the principles of operation of antennas, antenna parameters and expansion of electromagnetic waves; - understand the basic principles of electromagnetic protection and earthing; - be familiar with electromagnetic compatibility standards.			
Lecturer / Teaching assistant	Associate Professor Tatijana Dlabac, Phd Teaching associate Ivana Čavor			
Methodology	Lectures, calculation exercises, homework, consultations.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Concepts of electromagnetic compatibility (EMC), electromagnetic interference (EMI) and electromagnetic sensitivity (EMS)			
I week exercises				
II week lectures	Electromagnetic fields and electrical circuits			
II week exercises				
III week lectures	Sources of electromagnetic interference (EMI).			
III week exercises				
IV week lectures	Transmission of electromagnetic interference			
IV week exercises				
V week lectures	Antennas. Elementary sources of radiation. The parameters of the antenna and the expansion of electromagnetic waves.			
V week exercises				
VI week lectures	Measuring antenna.			
VI week exercises				
VII week lectures	Test I			
VII week exercises				
VIII week lectures	Electromagnetic shielding			
VIII week exercises				
IX week lectures	Electromagnetic grounding			
IX week exercises				
X week lectures	Filtering			
X week exercises				
XI week lectures	Electromagnetic compatibility measurements and testing			
XI week exercises				
XII week lectures	Electromagnetic compatibility (EMC) standards.			
XII week exercises				
XIII week lectures	Standards for harmful impacts of electromagnetic field on ship crew and fuel			

XIII week exercises						
XIV week lectures		Principles of designing electromagnetically compatible devices				
XIV week exercises						
XV week lectures		Test II				
XV week exercises						
Student workload		Per week 6 credits x 40/30 = 8 hours Structure: 2 hours of lectures 1 hours of practice exercises 5 hour of individual work including consultations				
Per week		Per semester				
6 credits x 40/30=8 hours and 0 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 0 excercises 5 hour(s) i 0 minuts of independent work, including consultations		Classes and final exam: 8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts Total workload for the subject: 6 x 30=180 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 36 hour(s) i 0 minuts Workload structure: 128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work)				
Student obligations		Students are required to attend classes, do homeworks and make final exam(s).				
Consultations						
Literature		1. V. Prasad Kodali: Engineering Electromagnetic Compatibility, IEEE Presss, New York, 1996. 2. Williams,T., Armstrong, K.: EMC for Systems and Installations, Newnes, Oxford, 2000. 3. C.R.Paul, Introduction to Electromagnetic Compatibility, John Wiley & Sons, New York, 1992. 4. A. Djordjević, D. Olćan, Ispitivanje elektromagnetske kompatibilnosti, Akademska misao, Beograd, 2012.				
Examination methods		Test I, up to 20 points; Test II, up to 20 points; Homework, up to 10 points; Final exam 0 - 50 points; Positive mark requires not less than 50 points cumulatively.				
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points