

PIRI REİS UNIVERSITY
MARITIME FACULTY
Marine Engineering Programme
Course Catalog Form

Course Name : Propulsion Engineering				Degree: Bachelor of Science		
Code	Year/Semester	Local Credits	ECTS Credits	Course Implementation, Hours/Week		
				Course	Tutorial	Laboratory
SM 415	4/7 (Fall)	3	4	3	-	-
Department		Marine Engineering				
Instructor		Deniz UNSALAN, Ph.D., Professor				
Contact Information		0-216-5810072				
Office Hours		Any time				
Web page		---				
Course Type		Compulsory		Course Language	English	
Course Prerequisites		SM 211				
Course Category by Content, %		Basic Sciences	Engineering Science	Engineering Design	Humanities	
		25	40	35	-	
Course Description		The student gains a higher level of knowledge related to power production, transmission, hydrodynamic phenomena related to ship propulsion and problems related to shafting. Modern trends in ship propulsive power transmission are studied, and fuel consumption concepts are examined. The importance of hull and propeller maintenance and weather routing is stressed.				
Course Objectives		The successful student shall be able to assess the propulsive efficacy of a given ship in terms of performance and operational/acquisition costs.				
Course Learning Outcomes		Students who successfully pass the course will acquire knowledge and skills as listed below: I. The chain of power losses starting from fuel combustion to the ship propulsion. II. Various propulsive systems and their specific uses in a comparative form. III. Various propeller/propulsion systems with specific reference to screw propeller IV. In-service factors influencing ship propulsion and remedies for increasing ship performance. V. Calculations related to fuel consumption.				
Instructional Methods and Techniques		Lecture				
Tutorial Place		Class room				
Co-term Condition		Not applicable				
Textbook		<ul style="list-style-type: none"> • Marine Propellers, 2nd Ed., by J.S.Carlton,.Butterworth-Heinemann • Ship Design and Performance, by C.B. Barrass, Elsevier-BH 				
Other References		<ul style="list-style-type: none"> • Various 				
Homework & Projects		Students will be required to prepare a term paper on a particular topic related..				
Laboratory Work		---				
Computer Use		---				
Other Activities		---				

Assessment Criteria	Activities	Quantity	Effects on Grading, %
	Attendance		---
	Midterm		25%
	Quiz		---
	Homework		-
	Term Paper/Project		25%
	Laboratory Work		---
	Practices		---
	Tutorial		---
	Seminar		---
	Presentation		---
	Field Study		---
	Final Exam		%50
	TOTAL		%100
	Effects of Midterm on Grading, %		%25
Effects of Final on Grading, %		%50	
TOTAL		%100	

Week	Topics	Course Outcomes
1	General overview of ship resistance	
2	Chain of power transmission from fuel combustion to propeller slipstream, losses	
3	Propulsive efficiency of a ship, momentum, blade element, lifting line/surface theories	
4	Shafting, reduction of shaft revolutions, shaft alignment procedures	
5	Various ship propulsive systems and their relative usage	
6	Importance of hull and propeller maintenance, dry docking and coating procedures	
7	Midterm Exam	
8	Assessment of in-service factors, weather routing	
9	Ship propulsion economics- Issues related to fuel consumption: Relationship between fuel consumption, displacement, ship speed and voyage length.	
10	Introduction to engineering economics as a tool for assessing the merits of propulsion systems	
11	Term paper presentation I	
12	Term paper presentation II	
13	Term paper presentation III	
14	General overview	

Relationship between the Course and the Marine Engineering Curriculum

	Program Outcomes	Level of Contribution		
		1	2	3
a	An ability to apply knowledge of mathematics, science, and engineering	X		
b	An ability to design and conduct experiments, as well as to analyze and interpret data		X	
c	An ability to design a system, component or process to meet desired needs			X
d	Ability to function on multi-disciplinary teams			X
e	An ability to identify, formulate, and solve engineering problems			X
f	An understanding of professional and ethical responsibility			
g	An ability to communicate effectively			
h	The broad education necessary to understand the impact of engineering solutions in a global and societal context			X
i	A recognition of the need for, and an ability to engage in life-long learning			X
j	A knowledge of contemporary issues			X
k	An ability to use the techniques, skills and modern engineering tools necessary for engineering practice			X
l	An ability to apply legal, societal and environmental knowledge in maritime transport and in all respective modes of transport operations.			X
m	An ability to interpret and analysis of the data regarding maritime management and operations, recognition and solution of problems for decision making process.			X

1: Small, 2: Partial, 3: Full

<u>Prepared by</u> Prof.Dr.Deniz ÜNSALAN	<u>Date</u> 30.12.2013	<u>Signature</u>
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