Marine diesel Engine I

Basic Course Specification		
Course Title	**Course Code**	**Program on which the course is given**
Marine diesel Engine I	MM 221 T	Bachelor
Academic Year	**Specialization** (hr/week)	**Pre-Requisites**
2020 - 2021	Theoretical. 1 Application 5 Credit 3	ME231T

Overall Course Objectives

This syllabus covers the requirements of the STCW-78, as amended. In particular Chapter III, Section A-III/1for the function "Marine Engineering at the Operational Level", STCW-78, as amended. The syllabus is so designed with the guide of IMO Model course 7.04, version 2014, and function 1. This functional element provides the detailed knowledge to support the training outcomes related to Marine Engineering at the Operational Level.

Course Learning Outcomes. By successful completion of the course each student will be able to:

Topic	Linking to PLOs	7th Week Assessment	12th Week Assessment	Class Activities	Final Exam
1. the different types of heat engines	a,b,f	x	x		X
2. Apply the basic methodologies used in estimating cycle of operation of diesel engines.	f,c		x	x	
3. Operate main and auxiliary diesel engines and associated control systems.	b,d, k		x		x
4. Operate fuel, lubrication, starting, cooling and reversing systems and associated control systems	a,b, k				x
5. Deliver report related to one of the course topics as a term paper presentation in written and oral with the aid of IT and library resources	B, i, j		x	x	

Course Content

Week #	Topic	Hrs. #	Theoretical	Application
1	Historical review and the importance of diesel engines as a prime mover.	6	1	5
2	Classification of diesel engines and operating cycles including dual fuel engines, some useful terms.	6	1	5
3	Construction details of marine diesel engines including dual fuel engines.	6	1	5
4	Exhaust & scavenging processes in diesel engine	6	1	5
5	Pressure charging and turbochargers.	6	1	5
6	Fuel and fuel injection systems	6	1	5
7	**7th Week Exam + Electronic Injection**	**6**	1	5
8	Fuel types + Fuel properties	6	1	5
9	Fuel System + Combustion principles	6	1	5
10	Fuel Combustion Defects	6	1	5
11	Lubrication and engine cooling systems	6	1	5
12	**12th Week Exam + Lube. oil Properties**	**6**	1	5
13	Engines Staring & Reversing System	6	1	5

14	Engine performance and heat balance analysis.	6	1	5
15	Operation and some working difficulties + Safety and emergency procedures	6	1	5
16	**Final Assessment**			
Total Hours		**90**	**15**	**75**

Teaching & Learning Methods	**Facilities Required for Teaching & Learning Methods**
• Lectures -Tutorials • Assignments &sheets • Practical lessons in the workshop	• White board & Data Show • Videos • Marine Diesel Engine workshop

Students Assessment Methods

Assessment Schedule	
Assessment#1	Week 7
Assessment#2	Week 12
Assessment#3	Week 16

Grading Method

7th Week Assessment	Written Exam	**30%**
12th week Assessment	Written Exam	**20%**
Class Activities	Participation and Quiz	**10%**
Final Exam	Written Exam	**40%**
	Total	**100 %**

Assessment criteria meets the standards of the STCW 78 convention "as amended"; and in the light of the related IMO model courses.

Staff Requirements

Marine Chief Engineer/ Ph.D.

List of References

Course Notes	**Optional/Alternate Text book**
Notes prepared and edited (from several related textbooks, standards and codes in use) to cover the syllabus	"Reed's vol.12: motor engineering knowledge for marine engineering, 9781408175996"
Additional References	**Periodicals and Publications**
None	**None**

Accreditation Bodies

*Egyptian Authority for Maritime Safety (EAMS)
European Commission (EC)
*ISO (9001 – 2015) DNV-GL
*Central Evaluation and Accreditation Agency Hanover, Germany (ZEVA)
*Ministry of Education (KSA)
*Ministry of Higher Education (Greece)
*Ministry of Higher Education (Oman)
*Commission for Academic Accreditation (CAA), Ministry of higher Education (UAE)
*University of Plymouth, United Kingdom (dual degree)

Prepared by: Course Coordinator Khaled elmerghany **Reviewed by: Head of Department**

Date: November 2020 Nasr Abdel rahman