Electrical Engineering Fundamentals for Marine

Basic Course Specification		
Course Title	**Course Code**	**Program on which the course is given**
Electrical Engineering Fundamentals for Marine	EE239	Bachelor
Academic Year	**Specialization** (hr/week)	**Pre-Requisites**
2020 - 2021	• Theoretical(2) • Application/ lab(2) • Credit(3Cr.)	BA124

Overall Course Objectives

- The course takes into account all relevant IMO resolutions and guidelines available at the time, the course was prepared with the guide of (IMO model course 7.04), to meet the mandatory requirements for knowledge, understanding and proficiency in Table AIII/1 of STCW78 as amended. (Manilla, 2010), for the function; Electrical, Electronic and control Engineering at Operational Level. Providing detailed skills related to the basic circuit, circuit theorems, the laws of magnetic force, motors and alternating current.

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) **Identify** the electrical circuit components	**d, e**	√	√		√
2) **Understand** terms used in ac and dc circuits such as phasor, wave and response.	**d**	√	√		√
3) **Apply** different methods for circuit analysis	**d, e**	√	√	√	√
4) **Perform** laboratory experiments to verify various electric circuits	**d, f**		√		

Course Content

Lec./ Week #	Topic	Hrs.#	Theoretical	Application	Lab
1	- Introduction to electrical circuits. -Introduction	4	2 -	- 2	- -
2	- Basic circuit. -Basic Circuits	4	2 -	- 2	- -
3	- Ohm's law - Ohm's law	4	2 -	- 2	- -
4	- Kirchoff's laws - Resistance codes, Ohm's law, resistances in series and parallel(Lab)	**4**	**2** -	- -	- 2
5	- Mesh analysis - Mesh analysis	4	2 -	- 2	- -
6	- Nodal analysis - mesh analysis and nodal analysis.(Lab)	4	2 -	- -	- 2
7	-7 th week	4	**2** -	- **2**	- -
8	- Source transformation and superposition theory - Nodal analysis	4	2 -	- 2	- -

Course Content					
Lec./ Week #	**Topic**	**Hrs.#**	**Theoretical**	**Application**	**Lab**
9	- Basic of electronic circuit elements -Basic of electronic circuit elements	4	2 -	- 2	- -
10	-Diode circuit and Transistor circuit - Diode circuit and transistor analysis	4	2 -	- 2	- -
11	-thyristor -testing of Diode circuit and Transistor circuit(lab)	4	2 -	- -	- 2
12	12th week exam	4	2 -	- 2	- -
13	-Alternating current -Alternating current	4	2 -	- 2	- -
14	-Waves, effective value. -Testing of Thyristor circuit.(Lab)	4	2 -	- -	- 2
15	- RLC Circuits and power calculation -waves, effective value and power.	4	2	- 2	- -
16	Final exam				
Total Hours		**60**	**30**	**22**	**8**

Teaching & Learning Methods	Facilities Required for Teaching & Learning Methods
• Lectures • Tutorials • Assignments &sheets • Experiments	• White board and data show • Laboratory

Students Assessment Methods	
Assessment Schedule	
Assessment#1	Week 7
Assessment#2	Week 12
Assessment#3	Class Activities
Assessment#4	Week 16

Grading Method		
7th Week Assessment	Written Exam	**30%**
12th week Assessment	Written Exam	**20%**
Class/ Lab Activities	Assignments- experimental tests	**10%**
Final Exam	Written Exam	**40%**
	Total	**100 %**

Staff Requirements	
Marine Chief Engineer/ Ph.D.	
Course Notes	**Essential Books**
Lecturer notes and sheets	"FUNDAMENTALS OF ELECTTICAL ENGINEERING & ELECTRONICS 9788121926607"
Recommended Books	**Periodicals and Publications**
None	None

IMO References
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)

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