

Automatic Control Systems

Basic Course Specification		
Course Title	Course Code	Program on which the course is given
Automatic Control	EE418T	Bachelor
Academic Year	Specialization (hr/week)	Pre-Requisites
2020/21	Lecture. 2 Application/ Lab 2 Credit 3	EE218

Overall Course Objectives
<p>Consider all relevant IMO resolutions and guidelines available at the time, the course was prepared (IMO model course 7.04), to meet the mandatory requirements for knowledge, understanding and proficiency in Table A-III/1 of STCW 78 as amended. (Manilla, 2010), for the function; Electrical, Electronic and control Engineering at Operational Level.</p> <p>Giving the marine engineering students a practical view of control engineering concerning controller units, analysis and tuning.</p>

Course Learning Outcomes. By successful completion of the course each student will be able to:					
Topic	Linking to PLOs	Midterm Assessment	12 th Week Assessment	Class Activities	Final Exam
1. Explain the open and closed loop control systems with the understanding of the positive and negative feedback systems.	d, e	x		x	X
2. Classify the control systems and show model physical systems in time and frequency domain.	d, f	x		x	X
3. Explain the theory of practice of the controller and how to tune its parameters.	d,e		x	x	X

Course Content					
Lec./ Week #	Topic	Hrs. #	Lec.	Applicati on	Lab
1	-Introduction to control system	3	2	-	-
	-Introduction to control system		-	2	-
2	- Modeling of control system	3	2	-	-
	-Modeling of control system		-	2	-
3	- Modeling of control system	3	2	-	-
	-Modeling of control system		-	2	-
4	Modeling of control system	3	2	-	-
	identifying standard control system(lab)		-	-	2
5	- Time and frequency response	3	2	-	-
	- Time and frequency response		-	2	-
6	- Time and frequency response	3	2	-	-
	- Time and frequency response		-	2	-
7	- Time and frequency response	3	2	-	-
	- 7 th Week Exam		-	2	-
8	- Time and frequency response	3	2	-	-

	- Time and frequency response		-	2	-
9	- Time and frequency response	3	2	-	-
	- Time and frequency response		-	2	-
10	- Error Detector/Comparator	3	2	-	-
	- Error Detector/Comparator		-	2	-
11	- Electric and pneumatic transducer and actuator	3	2	-	-
	- Time and frequency response(lab)		-	-	2
12	- 12 th week Exam + logic and analogue controller types	3	2	-	-
	-logic and analogue controller types		-	2	-
13	- Controller types and design	3	2	-	-
	-Controller types and design		-	2	-
14	- Controllers design	3	2	-	-
	- Controllers design		-	2	-
15	- control system application	3	2	-	-
	- Analog controllers (lab)		-	-	2
16	Final Assessment				
Total Hours		60	30	24	6

Teaching & Learning Methods		Facilities Required for Teaching & Learning Methods	
<ul style="list-style-type: none"> Lectures Tutorials Reports & sheets 		<ul style="list-style-type: none"> White board 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%	
12 th 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		Essential Books	
None		Modern Control Engineering, 9781782732303" OGATA, K. "PEARSON, 5ED. 2010"	
Recommended Books		Periodicals and Publications	

- Nagrath 80 Galpal, "Control System Engineering", John Wiley & Son, NY 1982	None
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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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