

Refrigeration and Air conditioning

Basic Course Specification		
Course Title	Course Code	Program on which the course is given
Refrigeration and Air conditioning	ME 434T	Bachelor
Academic Year	Specialization (hr/week)	Pre-Requisites
2020/2021	<ul style="list-style-type: none"> • Theoretical (2) • Application (2) • Credit (3Cr.) 	ME331T

Overall Course Objectives
<ul style="list-style-type: none"> • Ensuring that students have a comprehensive, state of the art knowledge of modern computers concepts and issues needed to succeed in our society. • Thermodynamics of vapor: ideal & practical cycles, superheating and regeneration. Steam boilers component and performance, steam turbines and power plant cycles

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. Determine the cop for different types of air refrigeration systems	c,d	X	X	X	X
2. Perform thermodynamic analysis of absorption refrigeration systems and steam jet refrigeration system.	a,e,f		X	X	
3. Perform the load calculations for the different type of air conditioning systems.	d,k			X	X
4. Understand, analyse and apply theory about the economics of innovative industries through critical thinking.	d, h			X	X

Course Content				
Lec./ Week #	Topic	Hrs. #	Theoretical	Application
1	Introduction	4	2	2
2	Basic Vapor compression System-1	4	2	2
3	Basic Vapor compression System-2	4	2	2
4	Basic Vapor compression System-3	4	2	2
5	Load Estimation	4	2	2
6	Load Calculations	4	2	2
7	7th Week Exam - Load Calculations	4	2	2
8	Air Conditioning Fundamentals-1	4	2	2
9	Air Conditioning Fundamentals-2	4	2	2
10	Air Conditioning Fundamentals-3	4	2	2
11	Programming Language 3-Python	4	2	2
12	12th Week Exam Summer & Winter Cycles Summer & Winter Cycles	4	2	2
13	Special systems	4	2	2

Course Content				
Lec./ Week #	Topic	Hrs. #	Theoretical	Application
14	Air Conditioning Equipment	4	2	2
15	Air Conditioning Units	4	2	2
16	Final Assessment			
Total Hours		60	30	30
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 and data show Videos Marine engineering Workshop 		
Students Assessment Methods				
Assessment Schedule				
Assessment#1		Week 7		
Assessment#2		Week 12		
Assessment#3		Continuous Assessments		
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		REFRIGERATIONS AND AIR CONDITIONING 9780070665910		
Recommended Books		Periodicals and Publications		
<ul style="list-style-type: none"> Steam and refrigerant Charts and tables. Stoecker W.F., "Refrigeration and Air Conditioning", McGraw Hill, NY 		None		
Others (websites, e-books, library)				
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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