COURSE: **Heating Ventilation & Air Conditioning EN-4222 Fall 2015**

INSTRUCTOR: **LCDR Montanez** 208A Harrington
Email: cmontanez@maritime.edu Phone: Ext. 2074
Office Hrs: 4th period Monday, Tuesdays & Wednesday. Also can be scheduled during other times if needed. Email to schedule appt.

TEXT: Course Text: HVAC 3rd edition by Don Swenson. Instructor furnished handouts. Course materials obtained from the following sources: HVAC Systems Applications, SMACNA; Psychometrics Manual P, ACCA; HVAC, Grimm & Rosaler; HVAC Handbook, Haines & Wilson; HVAC Controls & Systems, Levenhagen & Spethman; Residential Energy, Krigger & Dorsi, Residential HVAC Systems, Krigger & Falke & Manclark; Mollier Chart 1936, Keenan & Keyes

GRADING: Weekly quizzes based on homework and reading assignments. Written reports required. Class project is the final exam. Class participation and homework are required and will be factored in your final grade. Occasionally, the class will be broken up into two sections so we can meet at various locations on campus. These field visits will be announced. Quizzes = 60%, Reports & homework = 15%, Final report = 20 %, Class participation = 5%

ATTENDANCE: Attendance is **MANDATORY**. The lowest quiz grade will be dropped for those with perfect attendance. There will be two excused absences allowed with prior approval however, no quiz grade will be dropped. There will be no quiz make-ups and a "zero" will be entered. Special liberty DOES NOT qualify as an excused absence. For each unexcused absence there will be a 2 % deduction from the final course average. Must be in uniform, no boiler suits. NO FOOD or drink in class permitted.

The following breakdown of assignments most likely will be amended to satisfy course needs and progress.

CLASS	TOPICS**	HOMEWORK
Week 1	Introduction to HVAC, Terminology, HVAC overview, Organizations	Chapter. 1 & 2
Week 2	Residential HVAC	As Assigned
Week 3	Commercial HVAC	As Assigned
Week 4	Thermodynamics Heat loss, Heat load	As Assigned
Week 5	Psychometrics, Air Flow	As Assigned
Week 6	Building Load Calculations	As Assigned
Week 7	Electric Fundamentals	As Assigned

Week 8	Refrigeration Fundamentals	As Assigned
Week 9	Heating Fundamentals	As Assigned
Week 10	Piping Systems Plans & Specs	As Assigned
Week 11	Air Duct & Plenum Systems Plans & Specs	As Assigned
Week 12	HVAC Controls Electric, Self Contained Pneumatic, Electronic	As Assigned
Week 13	Class Presentations Commissioning, TAB	As Assigned
Week 14	Class Presentations Course Review	As Assigned
TOPICS**	Subject content will be amended to suit the class needs	
LABS	We will visit campus locations on Fridays to view HVAC systems	

STUDENT LEARNING OUTCOMES: The main objective of the course is for the student to learn about various HVAC applications including system design, construction, operational and maintenance principles that are used throughout both residential and commercial sectors. The student should be able to walk into a facility and quickly size up the type of system installed. The student should also be able to understand why decisions regarding system design and operation have an economic as well as a personal comfort impact on the success of a facility. Students will be required to utilize writing skills, presentation skills and be able to calculate energy consumption.

At the completion of this course the student should be able to:

1. Possess a good command of industry related terms and terminology in HVAC applications
2. Discuss sustainable design, LEED implication on HVAC
3. Understand why thermodynamics is important to HVAC economics
4. Understand why psychometrics is important to HVAC design
5. Be able to recognize and identify various types of HVAC systems
6. Read and understand basic plans and specification documents
7. Demonstrate the ability to perform various heat loss heat load calculations
8. Describe all the equipment typically required for HVAC system installation
9. Understand several types of HVAC control strategies
10. The role of commissioning an balancing in HVAC systems
11. Determine what type of HVAC system has been installed in a facility
12. Realize there is much more information and detail regarding this subject yet to be learned

MMA is committed to providing reasonable accommodations to students with documented disabilities. Students who believe they may need accommodations for this class are required to contact Prof. Fran Tishkevich, Director of Disability Compliance, within the first two weeks of class at ext. 2208 or by email at ftishkevich@maritime.edu.