

COURSE: ELECTRONICS EN-3212 FALL 2012

INSTRUCTOR: Dr. Diane DiMassa ddimassa@maritime.edu HA-215 ext. 1212

TEXTS: Process Control Instrumentation Technology 8th edition, Curtis Johnson, Pearson, 2006
Foundations of Analog and Digital Electronic Circuits, Agarwal & Lang, Elsevier 2005 ***eBook***

PRE-REQUISITIE: Engine Physics II (SM2224), Calculus II (SM2113)

Electronics provides a broad overview of the modern electronics used by the marine and power industries for automation, system monitoring and control. The course gives the foundations of both analog and digital circuits

OBJECTIVES:

- Understand the relationship of component blocks and signals in electronic systems.
- Define primary circuits and components used for analog signals and conditioning.
- Define primary circuits and components used for digital signals and conditioning.
- Read analog and digital circuit diagrams, and identify basic electronic components.
- Understand the use of solid-state devices for amplification and switching applications.
- Read and understand PLC and ladder logic circuits used in discrete-state applications.

ATTENDANCE: Attendance is mandatory. You are permitted one (1) unexcused absence without penalty. For each additional unexcused absence, your COURSE grade will be lowered by one (1) point. For an absence to be excused, you must 1) notify me *IN ADVANCE*, and 2) provide written documentation justifying your absence. ***Both criteria must be satisfied for the absence to be excused.*** For any student who has perfect attendance and has all homework turned in, 50 points (or more) will be added to the final homework score.

CELL PHONES: Cell phones are NOT permitted in class. If your cell phone rings, beeps, vibrates, etc. or you use your phone for anything (including text messaging) at any time during class, it will be confiscated and delivered to the Academic Dean. Further,

First offense: You will be dismissed from class (even if it is during an exam).

Second offense: You will be dismissed from class and your final grade will be lowered by one FULL letter grade.

Third offense: You will fail the course.

As you can see, it is probably best to just leave your cell phone in your dorm room.

GRADING: Homework and Assignments (10%)
Quizzes (10%)
Exam 1 (10%)
Exam 2 (20%)
Exam 3 (25%)
Final Exam (25%)

There will be no make-up quizzes or exams. Cheating is NOT tolerated.

DO YOUR HOMEWORK. Those who do their homework tend to do well in this course.

Mass Maritime is committed to providing reasonable accommodations to students with documented disabilities. Students who believe they may need accommodations in this class are required to contact the Director of Disability Compliance *within the first two weeks of class*.

TOPICS (not necessarily in order):

- Introduction to Control Systems
- Analog Systems
- Digital Systems
- Analog Signal Processing
- Resistance, Capacitance, Inductance
- Voltage Dividers & Bridges
- Impedance
- Filters
- Operational Amplifiers
- Digital Signal Processing
- Boolean Algebra & Logic Gates
- Digital to Analog Converters
- Analog to Digital Converters
- Programmable Logic Controllers
- Ladder Logic
- Transistors & Solid State Relays