

Massachusetts Maritime Academy

ARPA -MT 3222, Spring Semester 2022

Instructor

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Email: kchicoine@maritime.edu , student hours: M/F 10-1050, Thur 12-1250 and by appointment

Course prerequisites

Radar Observer MT 3122

Required Text and Equipment

Pub 1310

Plotting tools & Radar Plotting sheets

Course Description- Objectives and Outcomes

This course is designed to meet all ARPA knowledge-based assessments and the fourteen performance-based assessments, which form part of the requirements for Officer in Charge of a Navigation Watch (STCW Table A-II/1). Students who successfully complete the course will be able to choose an appropriate mode of display, select plotting graphics controls suitable to the circumstances, make appropriate use of operational alarms, acquire and track those targets which present a potential threat of collision, extract the information needed on course, speed, and closest point of approach to enable early action and prevent a close-quarters situation, and use ARPA to confirm and monitor their actions. Students will be aware of the dangers of over reliance on automatic acquisition and tracking of targets and on operational alarms. They will also be aware of factors (including errors in course and speed inputs) which may affect accuracy and the correct functioning of the ARPA. This course satisfies the requirements for a USCG ARPA endorsement. Class is held weekly in the Integrated Navigation Lab (INL) simulator with students working individually at each student station. Classwork is supplemented by practical weekly labs in the Integrated Navigation Lab (INL) simulator with students working individually at each station. [Lab time required]

Assessments

There are fourteen operational STCW assessments imbedded in this MT 3222. These Assessments will be conducted during regular class/lab meetings. In the event a student is absent for the assessment or fails the assessment, a second opportunity will be given as a make up at the end of the semester. If you miss an assessment for an unexcused absent you will receive an F as your first attempt. Failure to pass every assessment will result in incomplete ('I'), If the incomplete is not rectified before the course is complete, the incomplete is automatically converted to a failure ('F')..

Demonstrate proficiency in the following skills:

OICNW 3-1E Determine risk of collision

OICNW 3-2A Set up and maintain an ARPA display

OICNW 3-2B Manual target acquisition

OICNW 3-2C set an exclusion area to automatic acquisition

OICNW 3-2D change vector characteristics

OICNW 3-2E Designate targets
OICNW 3-2F Cancel single target
OICNW 3-2G Target history
OICNW 3-2H Establish CPA TCPA alarm
OICNW 3-2I Establish an alarm area
OICNW 3-2J Trial Maneuver
OICNW 3-2K Switch stabilization modes
OICNW 3-2L Navigation Lines
OICNW 3-2M Determine Set and Drift

Learning objectives

Demonstrate Knowledge and Understanding of the following topics

A3.1 Knowledge of the fundamentals of radar and automatic radar plotting aids (ARPA)
A3.2 factors affecting performance and accuracy
A3.2 setting up and maintaining displays
A3.2 detection of misrepresentation of information, sea return
A3.2 range and bearing; course and speed of other ships; time and distance of closest approach of crossing, meeting overtaking ships
A3.2 identification of critical echoes; detecting course and speed changes of other ships; effect of changes in own ship's course or speed or both
A3.2 application of the International Regulations for Preventing Collisions at Sea, 1972, as amended
A3.2 plotting techniques and relative- and true- motion concepts
A3.2 parallel indexing
A3.3 Principal types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA
A3.4 Ability to operate and to interpret and analyze information obtained from ARPA, including:
A3.4 system performance and accuracy, tracking capabilities and limitations, and processing delays
A3.4 use of operational warnings and system tests
A3.4 methods of target acquisition and their limitations
A3.4 true and relative vectors, graphic representation of target information and danger areas
A3.4 deriving and analyzing information, critical echoes, exclusion areas and trial maneuvers

ATTENDANCE

Since this is an STCW course, no allowance for unexcused absence can be made under Federal Law. Missing more than two (2) lecture/lab classes for ANY reason will result in at least one full letter reduction of your final grade. Absence for medical court or legal obligation, varsity sports are permitted however students are responsible for the course material. Disciplinary action may be taken for unauthorized absences and anyone who has more than (4) four class-long, unexcused absences will receive an "F" grade for the COURSE. It is your duty to keep up with the material, and to arrange to make up any quizzes, tests or material missed *in advance*. Make your arrangements beforehand, or a zero will be recorded for that work.

COURSE CONDUCT

- Course conduct will be in accordance with the MMA regimental system. All Cadets shall wear the uniform of the day to each lecture class. The MMA honor code will be strictly followed.
- All students will soon be ship's officers. They will be addressed and treated as such.
- Reference shall be made to the syllabus for lectures. All students are expected to come to class prepared. READ ASSIGNMENTS BEFOREHAND
- Cell phone texting or calls are not permitted during class. **Cell phones *SHALL* be placed in silent mode and put away, in your bag or pocket at the beginning of class and remain away until the end of class. First offense of this policy will result in immediate dismissal from class and delivery of the cell phone to the Dean of Undergraduate Studies. Each offense thereafter will result in a reduction of your overall grade by one letter grade and immediate dismissal from class and delivery of the cell phone to the Dean of Undergraduate Studies. Use of smart phone calculators is not permitted.**
- Laptop computers are permitted in the classroom. However, if Internet surfing or use of social media is detected during class periods, laptop computer use privileges will be suspended.
- Only covered drinks will be permitted in the classroom. No food will be permitted in classrooms.

Cheating

Cheating will not be tolerated. Disciplinary action will be taken. A grade of ZERO will be issued. Don't do it!

Blackboard

Course material may be posted on Blackboard. Prior to class meetings, the student is responsible for checking Blackboard for notices, assignments, and other information.

Grade Policy

Final course grades will be awarded as listed below. *In order to receive the USCG approved ARPA certificate a minimum of 70% on the theory final exam, 90% on the simulator collision avoidance final exam, and a P (pass) on all of the operations assessments must be achieved.

Quiz average	30%	A	93.0- 100	D+	67.0-69.9
Presentation average	10%	A-	90.0- 92.9	D	63.0-66.9
Midterm exam (practical & theory)	20%	B+	87.0-89.9	D-	60.0-62.9
*Final- Theory	20%	B	83.0- 86.9	F	0.00- 59.9
*Final- Practical	20%	B-	80.0-82.9	I	(Incomplete)
		C+	77.0-79.9	W	(Withdrawn)
		C	73.0-76.9		
		C-	70.0-72.9		

Case Study Presentation

Inductive reasoning has proven to be a very effective method of learning. Most students learn better through real life scenarios. Each student will be assigned a case study. Students will analyze the incident/ accident and present their findings to the class. This exercise is to designed help build upon

the students' problem solving and analytical skills. During the presentation, each group should clearly ascertain the following:

- 1) The issue/ problem
- 2) Events leading up to the problem
- 3) Key factors and event
- 4) Lessons learned
- 5) Make recommendation

Extra Help and Support

Students are encouraged to seek extra help. I will be either in my office or in the Radar lab during my posted office hours. I am available at other times with an appointment. If you feel that you are falling behind, don't wait until it's too late to get caught up. There will be tutoring at night during the semester, please use this extra simulator time to practice for assessments and to refine your skills.

Learning Disabilities

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:

ADA Coordinator: Dr. Elaine Craghead, Asst. Dean
ABSIC 320 x5120 (Karen Nahigian)
ADAcpliance@maritime.edu
(We're here 8-4, Monday-Friday)

Thereafter, you must make me aware of any determined accommodations so that they may be implemented within our classroom.

MMA Health Services

HS realizes that students may encounter situations which could impede their academic, personal and social development and success. Counseling services are designed to help students address these concerns, increase their self-awareness and empower them to manage challenging areas in their lives. To schedule a confidential appointment please contact the Health Services department at ext. 1480

Sexual Harassment and Misconduct

Our school is committed to fostering a safe, productive learning environment. Title IX and our school policy prohibits discrimination on the basis of sex. Sexual misconduct including harassment, domestic and dating violence, sexual assault, and stalking is also prohibited at our school. Our school encourages anyone experiencing sexual misconduct to talk to someone about what happened, so they can get the support they need and our school can respond appropriately. If you wish to speak confidentially about an incident of sexual misconduct, want more information about filing a report, or have questions about school policies and procedures, please contact our Title IX Coordinator, which can be found on our school's website.

Massachusetts Maritime Academy
ARPA -MT 3222 Course Syllabus
Fall 2022

<u>Week Lecture Topic</u>	<u>Suggested reading prior to class meeting</u>
1. Course Introduction & Review of RADAR plotting techniques	<i>RADAR Observer Manual</i> Chapter 7
2. RADAR Plotting review (cont.) Quiz 1	<i>RADAR Observer Manual</i> Chapter 7
3. Principle ARPA systems, ARPA Terms and definitions	<i>RADAR Observer Manual</i> Chapter 4
4. Setting up and maintaining displays, TCPA, guard zones, alarms and warnings Quiz 2 and assessments	<i>RADAR Observer Manual</i> Chapter 4.7, 5.2
5. Trial maneuver, obtaining information Quiz 3 and assessments	<i>RADAR Observer Manual</i> Chapter 4.4, 5.3
6. Midterm Exam Written and Practical	<i>RADAR Observer Manual</i> -Review Operators manual-Review
7. Speed input & Determining Set and drift. Quiz 4	<i>RADAR Observer Manual</i> Chapter 2.6, 6.8
8. Navigation lines assessments	<i>RADAR Observer Manual</i> Chapter 5.4
9. Obtaining information from ARPA Situational awareness, Quiz 5	<i>Voyage Plan</i>
10. Obtaining information from ARPA & Navigation techniques.	<i>RADAR Observer Manual</i> Chapter 4
11. Errors of interpretation, Errors displayed data, and assessments	<i>RADAR Observer Manual</i> Chapter 4
12. RADAR/ARPA assisted casualties	Case Studies
13. IMO Performance Standards Final Exam –Practical Make up assessments	<i>RADAR Observer Manual</i> -Review Operators manual-Review

