Massachusetts Maritime Academy
ARPA -MT 3222, Fall Semester 2015

Instructors

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Course prerequisites

Radar Observer MT 3122

Required Text and Equipment

Radar Observer Manual, Pecota, Samuel R.
Department of Transportation, *Navigation Rules*
Plotting tools & Radar Plotting sheets

Furuno Operators Manual

At the start of the semester each student will be loaned a copy of the Furuno Operators Manual. At the end of the semester, it must be returned or replaced before a final grade will be given.

Learning Outcomes

Those who successfully complete the Automatic Radar Plotting Aids (ARPA MT 3222) 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 nearest approach to enable early action to be taken to avoid a close quarters situation, and make use of ARPA to confirm and monitor their actions.

Learning Objectives

Demonstrate knowledge and understanding of the following STCW elements:

- OICNW-A3.1 Knowledge of the fundamentals of radar and automatic radar plotting aids (ARPA)
- OICNW-A3.2 factors affecting performance and accuracy
- OICNW-A3.2 setting up and maintaining displays
- OICNW-A3.2 range and bearing; course and speed of other ships; time and distance of closest approach of crossing, meeting overtaking ships
- OICNW-A3.2 identification of critical echoes; detecting course & speed changes of other ships; effect of changes in own ship's course and/or speed
- OICNW-A3.3 Principal types of ARPA, display characteristics, performance standards and the dangers of over-reliance on ARPA
- OICNW-A3.4 system performance and accuracy, tracking capabilities and limitations, and processing delays
- OICNW-A3.4 use of operational warnings and system tests
- OICNW-A3.4 methods of target acquisition and their limitations
- OICNW-A3.4 true and relative vectors, graphic representation of target information and danger areas
- OICNW-A3.4 deriving and analyzing information, critical echoes, exclusion areas and trial maneuvers

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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 Establish an exclusion area
- OICNW-3-2D Set vector characteristics
- OICNW-3-2E Designate targets
- OICNW-3-2F Cancel targets
- OICNW-3-2G Target history
- OICNW-3-2H Establish CPA and TCPA
- OICNW-3-2I Establish 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

Assessments

The fourteen operational STCW assessments listed above will be conducted during regular class/lab meetings. In the event a student is absent and misses the assessment or fails the assessment, a second opportunity will be given as a make up at the end of the semester. Failure to pass every assessment will result in full course failure.

Attendance

Attendance is mandatory at all classes. Disciplinary action will be taken (pink mail) for unexcused absences. Final course grade will drop by one grade for every class missed. Notice of absence for any reason must be given to the instructor **prior** to the respective class. Cadets are responsible for reading assignments, classroom lectures, tests, and quizzes. Any assigned homework is still due, don't wait until the next class meeting.

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

In order to receive the USCG approved ARPA certificate, a minimum of 70% on the theory, 90% on the simulator collision avoidance exam, and a P (pass) on all of the operations assessments must be achieved.

Quiz average	20%
Take home Quiz (homework)	15%
Presentation average	5%
Midterm exam (practical & theory)	20%
Class participation & Attendance	5%
Notebook	5%
* Final- Practical	15%
*Final- Theory	15%

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Snacks and Cell phones
Eating and/or drinking will not be permitted in the RADAR lab or in the classroom. NO cell phones will be permitted in the radar lab. Tap sheets will be issued to anyone texting during class or lab hours.

Take home Quizzes
Take home quizzes are worth 15% of your final course grade. Quizzes turned in late will be marked down 10 points every day it is late.

Notebooks
The notebook grade will be worth 5% of your final grade. It will be graded on the following content: notes, lab documents, take home quizzes (HW), course documents, and over all organization. Notebooks will be collected at the start of the last lab session.

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.

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 Professor Fran Tiskevich, the Director of Disability Compliance, within the first two weeks of class in RM 311A Harrington, at MMA ext. 2208, or ftishkevich@maritime.edu

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.

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ARPA -MT 3222 Course Syllabus
Fall 2015

Week	Lecture Topic	Suggested reading prior to class meeting
1.	Course Introduction & Review of RADAR plotting techniques	*RADAR Observer Manual* Chapter 6
2.	RADAR Plotting review (cont.) Quiz 1	*RADAR Observer Manual* Chapter 6
3.	Principle ARPA systems, Target acquisition, Tracking Capabilities and limitations	*RADAR Observer Manual* Chapter 8 Operators manual 2.5, 2.6, 2.9, 2.10, 2.11
4.	Setting up and maintaining displays, processing delays, representation of target information, alarms and warnings Quiz 2 and assessments	*RADAR Observer Manual* Chapter 8 Operators manual 2.13,2.14, 2.15, 2.16
5.	Trial maneuver, obtaining information Quiz 3 and assessments	*RADAR Observer Manual* Chapter 8.7 Operators manual
6.	Midterm Exam Written and Practical	*RADAR Observer Manual* -Review Operators manual-Review
7.	Speed input & Determining Set and drift. Quiz 4	*RADAR Observer Manual* Chapter 8.10,8.11 Operators manual 2.4, 2.12
8.	System Operational Tests & Risk of over reliance on ARPA Quiz 5 and assessments	Operators manual 2.17,5.3
9.	Obtaining information from ARPA Navigation Lines. Quiz 6	*RADAR Observer Manual* Chapter 8.2 Operators manual 1.35
10.	Obtaining information from ARPA & Navigation techniques. Quiz 7	*RADAR Observer Manual* Chapter 8 Operators manual
11.	Errors of interpretation, Errors in displayed data. Quiz 8 and assessments	*RADAR Observer Manual* Chapter 8.3 Operators manual
12.	RADAR/ARPA assisted casualties	Case Studies
13.	IMO Performance Standards Final Exam –Practical Make up assessments	*RADAR Observer Manual*-Review Operators manual-Review IMO -Handout
14.	Final Theory Exam- Finals week	*RADAR Observer Manual* -Review Operators manual-Review