MARA A150: COASTAL NAVIGATION

Item	Value
Curriculum Committee Approval Date	03/13/2019
Top Code	095900 - Marine Technology
Units	3 Total Units
Hours	72 Total Hours (Lecture Hours 54; Lab Hours 18)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

Starting with the basics of navigation, students will be able to interpret charts, plot positions and courses, utilize navigational publications, and determine the effects of tides and currents relating to coastal piloting. Passage planning and boating safety legal requirements will be included. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Use electronic instrumentation to locate position on chart and recognize course and distance to destination.
2. Demonstrate the ability to interpret marine chart symbols, gyrocompass operation, and navigational aids in planning for safe passage.

Course Objectives

- 1. Identify and interpret marine chart symbols, marine and terrestrial features.
- 2. Measure distances; apply principles of time and speed.
- 3. Utilize variation and deviation to compensate or correct magnetic compass error.
- 4. Understand the principles of gyrocompass operation.
- 5. Demonstrate proficiency in plotting courses.
- 6. Compare and contrast manual and electronic methods of plotting.
- 7. Demonstrate knowledge of lights, navigational aids.
- 8. Differentiate between United States and foreign and systems.
- 9. Deduce conclusions for safe travel based on danger bearings.
- 10. Illustrate current diagrams and apply current vectors.
- 11. Evaluate navigational situations for safety.
- 12. Apply principles of navigation in planning safe passages.

Lecture Content

1 Course Introduction, material equipment requirements The Earth and Charts, Related publications Nautical terms and definitions Reading a chart and its symbols 2 Distance and Direction on a chart Chart familiarization 3 Time / Speed / Distance determination Introduction to Plotting, Lines of Position 4 Aids to Navigation, Buoys Beacons Aids to Navigation, Lighthouses, Light Towers 5 Marine Compass / compass error correction Dead Reckoning 6 Rules of the Road Lights Shapes 7 Introduction to Bearings Beam Bearings 8 Log Keeping 9 Bow Beam Bearings Running Fix 10 Danger Bearings Marine Weather Effects on Navigating 11 Tides Tidal Currents 12 Current Compensation Passage Planning 13 Marine Electronics Global Positioning SystemsReading: Chapman chapter 21, Piloting and Dead Reckoning chapter 15,16 14 Radar NavigationCollision Avoidance with Radar 15 Gyrocompass Finding Gyrocompass Error 16 Float Plans, Voyage Planning Boating Safety Legal Requirements

Lab Content

See Course Content.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture supported by slides and whiteboard illustrations Individual and group exercises Demonstrations of problem solving Instructor feedback and interaction regarding chart work

Reading Assignments

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Writing Assignments

The writing component will be an assignment comparing and contrasting electronic and manual methods of plotting.

Out-of-class Assignments

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Demonstration of Critical Thinking

Written objective testing Problem solving exercises which will include specific chart work Written assignment Completion of homework assignments

Required Writing, Problem Solving, Skills Demonstration

The writing component will be an assignment comparing and contrasting electronic and manual methods of plotting.

Other Resources

1. Tool and Cutter Grinding Handbook, Norton, Norton Grinding Co. 2. Students required to supply basic measuring tools and safety goggles