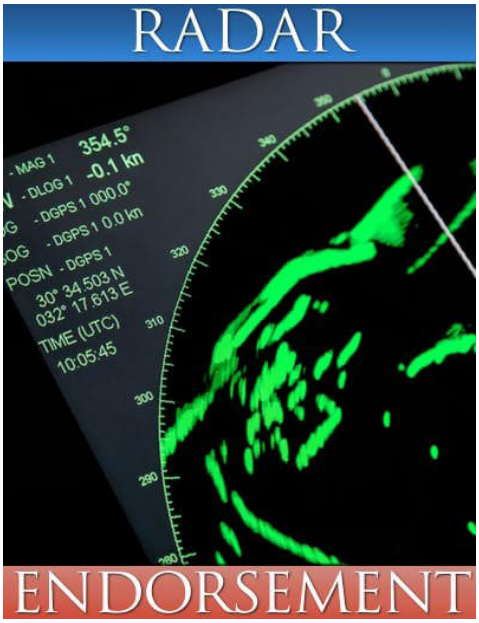
ASA 120 - RADAR ENDORSEMENT

OVERVIEW:

ASA 120 Radar Endorsement provides a detailed introduction to the principles and practical uses of marine radar. You'll learn how radar works, including the components, signal structure, and how to safely operate the system. The course covers interpreting radar screens, optimizing settings for different conditions, and using radar for navigation and collision avoidance. You'll practice piloting using radar, tracking targets, anchoring, and navigating in challenging visibility. With hands-on experience in radar operation and interpretation, ASA 120 equips you to navigate safely and efficiently, even in the most demanding environments.



PREREQUISITES:

- ASA 105 - Coastal Navigation

And the ability to demonstrate competencies in all knowledge and skills elements of that Standard.

STUDY MATERIALS:

- Radar for Mariners by David Burch (McGraw Hill, 2013)
- USCG Navigation Rules & Regulations Handbook

ASA 120 - RADAR ENDORSEMENT STANDARDS

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KNOWLEDGE:

1. Describe the principles of radar and how it works, including:
- Overview of system components
- Microwave pulse and beam structure
- Radar target characteristics
- Range of detection, scanner design, and mounting options
- Power requirements
- Radiation safety near radar scanners

2. Demonstrate basic radar operation, including:
- Power on, warm up, and initial adjustments
- Gain adjustments
- Use of anti-clutter controls for rain (FTC) and sea state (STC)
- Pros and cons of optional display modes: Head-up, North-up, and Course-up
- Optimizing pulse-length selection
- Measuring target range and bearing with VRM, EBL, and cursor mode
- Use of guard sectors and alarms
- Optimizing radar picture for specific observations

3. Interpret the radar screen, including:
- Optimizing radar picture for specific observations
- Radar shadows
- Effect of horizontal beam width on target images
- Effect of pulse length on target images
- Identifying interference and other unwanted echoes

4. Demonstrate the use of radar for piloting a vessel, including:
- Use of radar to hold a desired course
- Use of electronic range and bearing line (ERBL)
- Finding and keeping track of position relative to prominent landmarks
- Identifying distant harbors or channels
- Rounding a corner at a safe distance off the shore
- Anchoring with radar

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KNOWLEDGE (CONTINUED):

5. Demonstrate radar position navigation, including:
- Coordinating electronic chart displays with the radar screen
- Quick radar range and bearing confirmation of GPS positions
- Accurate multi-range fixes using radar

6. Demonstrate how to use radar for assisting with collision avoidance, including:
- Use and value of target trails and wakes
- Tracking targets with EBL and VRM
- Estimating time, range and bearing to closest point of approach (CPA)
- Figuring true course and speed of approaching targets (relative motion diagram)
- Determining expected running lights based on radar observations
- Rules of thumb for radar maneuvering
- Radar reflectors
- Overview of ARPA and AIS

7. Describe and demonstrate the use of radar in conjunction with the *USCG Navigation Rules and Regulations Handbook*, including:
- Role of radar in evaluating collision risk
- Cautions (limitations) for radar use
- Requirements for checking various ranges and adjustments
- Application of Rule 19(d) — when detecting a converging target by radar alone