

YACHTMASTER OCEAN SHOREBASED SYLLABUS

This is a course in Astro-navigation and worldwide meteorology, which also reveals the mysteries of the sextant. It assumes knowledge of all subjects covered in previous shore-based courses.

This course takes 5 days to complete.

1. The Earth and the celestial sphere

- Definition of the observer's zenith and position of a heavenly body in terms of latitude, longitude, GHA and declination.
- Right angle relationships, latitude and co-lat, declination and polar distance
• Tabulation of declination in the nautical almanac.
- Relationship between GHA, longitude and LHA
• Tabulation of GHA in the nautical almanac
• Rate of Increase of hour angle with time.

2. The PZX Triangle

- The tabulated components of the triangle, LHA, co-lat and the polar distance.
- The calculable components, zenith distance and azimuth.
- Relationship between zenith distance and altitude
- Introduction to the tabular method of solution in the Air Navigation Tables and the basic sight form.
- The use of calculators for the solution to the PZX triangle.

3. The Sextant

- Practical guide to the use and care of a sextant at sea
- Conversion of sextant altitude to true altitude, application of dip, index error, refraction, parallax and semi-diameter
- Correction of side error, perpendicularity, index error and collimation error

4. Measurement of time

- Definition of, and relationship between GMT, LMT, standard time and zonetime.
- Rating of chronometers and watches.

5. Meridian altitudes

- Forecasting of meridian altitude.
- Reduction of meridian altitude sights.

6. Sun, star and other sights

- Reduction and plotting of sun sights using Air Navigation tables
- Awareness of use of calculator for sight reduction
- The plotting of a sun-run-meridian altitude
- Awareness of the reduction and plotting of sights obtained from stars, moon and planets

7. Compass checking

- Use of amplitude and azimuth tables and/or a calculator.

8. Satellite Navigation Systems

- Principles and limitations of use of all systems

9. Great circle sailing

- Comparison of rhumb lines and great circles
- Vertices and composite tracks
- The computation of a series of rhumb lines approximating to a great circle by use of gnomonic and Mercator projections.

10. Meteorology

- General pressure distribution and prevailing winds over the oceans of the world.
- Tropical revolving storms, seasonal occurrence and forecasting by observation.

11. Passage planning

- Publications available to assist with planning of long passages (routeing charts Ocean Passages for the world and other publications).
- Preparation for ocean passages including survival equipment, victualling, water and fuel management, chafe protection, spares and maintenance.

12. Passage Making

- Navigational routine
- Watchkeeping
- Crew management

13. Communications

- Satellite and terrestrial systems
- Weather information

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