

YACHTMASTER OCEAN SYLLABUS

This is a course in astro-navigation and worldwide meteorology which also reveals the mysteries of the sextant. It assumes a knowledge of all subjects covered in the other shorebased courses.

1. *The earth and the celestial sphere*

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

2. *The PZX triangle*

- * The tabulated components of the triangle, LHA, co-lat and 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 of 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 and refraction
- * Correction of side error, perpendicularity, index error and collimation error

4. *Measurement of time*

- * Definition of, and relationship between, UT, LMT, standard time and zone time
- * Rating of chronometers and watches

5. *Meridian altitudes*

- * Forecasting time 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-sun 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 systems and/or 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 (routing charts, ocean passages of the world and other publications)

- * Preparation for ocean passage including survival equipment, victualling, water and fuel management, chafe protection, spares and maintenance

12. *Passage making*

- * Navigational routine
- * Watch-keeping
- * Crew management

13. *Communications*

- * Satellite and terrestrial systems
- * Weather information