

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
24 Douglas Street
GLASGOW G2 7NG**

NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 0068668 **-Session-1986-87**
-Superclass- ZF

-Title- PRACTICAL NAVIGATION 2

-DESCRIPTION-

Type and Purpose A specialist module which enables the student to acquire a deeper understanding of practical navigation than that developed in module 08667.

Preferred Entry Level 08667 Practical Navigation 1.

Learning Outcomes The student should:

1. know and use the information available in the Nautical Almanac relating to meridian passage of all heavenly bodies and for moonrise and moonset;
2. find the true altitude of a heavenly body;
3. find the latitude by meridian altitude of any heavenly body;
4. find the direction of a position line and a position through which it passes for bodies out of and near the meridian;
5. know and use different types of position line to obtain positions;
6. understand information available in star charts.

Content/ Context Corresponding to the Learning Outcomes:

1. Use of information available in the Nautical Almanac to find LMT of meridian passage for sun, moon, stars and planets to nearest minute. Given DR finding of LMT and GMT moonrise/moonset.

2. Sextant altitude, all corrections to apply to sextant altitude to obtain true altitude (ie index error, dip, refraction, parallax, semi-diameter (sun and moon), augmentation for moon's SD, moon's parallax in altitude from Nautical Almanac or tables. Finding of true zenith distance.
3. Application of TZD to declination to obtain latitude, elevated pole and latitude, circumpolar bodies at upper and lower transits, polar distance. Finding of latitude at lower transit, position line when body in meridian, pre-compute sextant altitude given DR and Nautical Almanac for any body on meridian, use of polaris to find latitude and position line.
4. Use of Marc St Hilair, longitude by chronometer and ex meridian methods of obtaining a position line and a point through which it passes; knowledge of limitations of each.
5. Listing of different types of position line (visual, astronomical, radio, etc). Finding of position from two or more simultaneously obtained position lines. Finding of position at time of second observation given two or more with courses and distances run in between.
6. Use of star chart to pre-compute altitudes and azimuth of stars to determine availability for position fixing.

Suggested Learning and Teaching Approaches

Active learning and teaching approaches should be used throughout.

Diagrams, models and planetarium visits should be used whenever possible.

Students should work individually.

The importance of safety and accuracy should be emphasised throughout.

Assessment Procedures

Learning outcomes 1-6 inclusive should be assessed by a series of short answer and extended questions, involving the finding of positions and calculations where appropriate. Satisfactory performance will be 70% or better depending on the difficulty of the test set. Testing should take place no later than 2/3 of the way through the module to allow time for remediation and retesting.