NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number-	**0068667**	**-Session-1986-87**
-Superclass-	**ZF**	

-Title-   **PRACTICAL NAVIGATION 1 (x $^1/_2$)**

-DESCRIPTION-

Type and
Purpose

A <u>general</u> module ($^1/_2$) which enables the student to acquire an understanding of practical navigation.

Preferred
Entry Level

Standard Grade in Mathematics at 3
(this could be taken in parallel)

Learning
Outcomes:

The student should:

1.   know and apply the parallel sailing formula;

2.   know and apply the plane sailing formula;

3.   know and use Traverse Tables;

4.   understand the mercator chart;

5.   use the information available in the Nautical Almanac;

6.   obtain the error of the compass (magnetic and/or gyro) from the true bearing of a heavenly body.

Content/
Context

Corresponding to the Learning Outcomes:

1.   (a)   Definition of difference in longitude (d' long) and departure (dep); solving of the formula
<u>dep</u>   = Cos Lat. d'long

       (b)   Calculation of distance between two positions on the same parallel, difference in longitude between two positions on same parallel, latitude given known departure and d'long, and final position after sailing along parallel of latitude.

2.   Understanding of, and derivation of, mean latitude; calculation of departure for plane sailing problem, calculation of course and distance between two positions and DR/EP using plane sailing formula given compass course, compass error, log distance, estimated speed, tide and current information and leeway.

3.   Understanding of the lay out of Traverse Tables, use of Traverse Tables to solve parallel and plane sailing problems.

4.   Definition of meridional parts, relationship between minutes of longitude, meridional parts, and secant of the latitude; when to use mercator in preference to plane sailing; calculation of course and distance between two positions using mercator sailing, final position and course and distance steamed.

5.   Understanding and use of information available in daily pages of Nautical Almanac; use of incremental corrections, first point of aries, SHA, given GMT and longitude derivation of LHA and declination for sun, moon, star, planets, 'v' correction, 'd' correction, LMT and GMT of visible sunrise/sunset, morning and evening twilight given DR.

6.   Given LMT and/or GMT plus DR, finding of azimuth of any heavenly body. Use of Nautical Almanac and ABC tables, true bearing of polaris using Nautical Almanac, amplitudes using tables (understanding of limitations of amplitudes in high latitudes), use of isogonic charts for variation and application of variation to find deviation for ships head.

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 calculations. 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.