Republic Democratic Popular Of Algeria

Ministry Of Transport

E T F I M Mostaganem

Long Term Training

Section : Patron Of The Coast Navigation (P N C)

Module: English

Teacher: Mrs Douar Rym

Maritime English

Lesson N°05

Lesson Five:

1/Instrument Of Navigation

2/signal flags

Navigational instruments refers to the instruments used by nautical navigators and pilots as tools of their trade. The purpose of they used these tools to go places and to get back home. Navigation is to ascertain the present position and to determine the speed, direction etc. to arrive at the port or point of destination

What is a Radar?

A Radar (Radio Detection And Ranging) is an instrument that can detect surrounding objects using radio waves. Thus, in the maritime world, objects such as ships, buoys or birds can be detected by Radars. The use of short-wavelength microwaves allows a very accurate measurement of the direction in which the object is detected and the distance at which it is located. In addition to the maritime domain, Radars have many other applications such as meteorology and aerial surveillance. Radars are also widely used in everyday life to measure the speed of cars on a road or the speed of a tennis ball on a court for example.

Echo sounding is a type of sonar used to determine the depth of water by transmitting acoustic waves into water. The time interval between emission and return of a pulse is recorded, which is used to determine the depth of water along with the speed of sound in water at the time.

Automatic control system used for automatic navigation. The system can sense the difference between the ordered course of the ship and the actual course and will cause the rudder to move to an angle proportional to this error. The autopilot keeps the vessel on the correct heading without the helmsman's intervention.

A Gyro compass is a form of gyroscope, used widely on ships employing an electrically powered, fast-spinning gyroscope wheel and frictional forces among other factors utilizing the basic physical laws, influences of gravity and the Earth's rotation to find the true north.

- **A nautical chart is a graphic representation of a sea area and adjacent coastal regions. Depending on the scale of the chart, it may show depths of water and heights of land (topographic map), natural features of the seabed, details of the coastline, navigational hazards, locations of natural and human-made aids to navigation, information on tides and currents, local details of the Earth's magnetic field, and human-made structures such as harbours, buildings, and bridges. Nautical charts are essential tools for marine navigation; many countries require vessels, especially commercial ships, to carry them. Nautical charting may take the form of charts printed on paper or computerized electronic navigational charts. Recent technologies have made available paper charts which are printed "on demand" with cartographic data that has been downloaded to the commercial printing company as recently as the night before printing. With each daily download, critical data such as Local Notices to Mariners are added to the on-demand chart files so that these charts are up to date at the time of printing.**

The Global Positioning System (GPS) has changed the way the world operates. This is especially true for **marine** operations, including search and rescue. **GPS** provides the fastest and most accurate method for mariners to navigate, measure speed, and determine location.