Course Description:
The course is an introduction to hydrographic surveying. Students learn about methods of collecting data to map the underwater topography. These techniques include classical surveying, acoustic systems, radio-wave systems, global positioning systems, photogrammetric and remote sensing systems.

Prerequisite(s): SE 211  Surveying 1 and SE 311 Surveying 2

Textbook(s) and Other Required Materials:

Course Objectives:
The objective of the course is to introduce the student to techniques used in hydrographic surveying for measuring water depth and positioning of sounding stations.

Topics Covered:
- Definition and Applications
- Coast Surveying
- Datum for Sounding
- Sounding water depth using:
  * Direct classical techniques
  * Echosounder
  * Photogrammetric and Remote Sensing Bathemetry (RADAR and LIDAR)
- Positioning of Sounding Stations using:
  * Classical techniques (Measurements of horizontal angles from onshore control points or from onboard the vessel)
  * Acoustic Positioning Systems
  * Radio-wave Positioning Systems
  * Global Positioning Systems (GPS)
- Data Processing and Nautical Charts

Class/laboratory Schedule: Two-50 minutes lectures and 1-hour tutorial each week.

Outcome Assessment: The assessment includes grades on tutorial problems, midterm exams and final exam.

Instructor: Prof. Ismat M. El Hassan