

SE 417: Hydrographic Surveying:

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:

Hydrography for the Surveyor and Engineer, by A. E. Ingham, 3rd edition, 1992. Blackwell Scientific Publications, Oxford, UK.

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 Bathymetry (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