

SE 418 Hydrographic Surveying

Credit and Contact hours	3 / 2 (Lectures), 1 (Tutorials), 0 (Laboratory)																									
Required, or Elective	E for a BSCE degree																									
Course Description	That branch of applied sciences which deals with the measurement and description of the features of the seas and coastal areas for the primary purpose of navigation and all other marine purposes and activities, including –inter alia- offshore activities, research, protection of the environment, and prediction services																									
Prerequisites or Co-requisites	SE 312																									
Course Learning Outcomes	Students completing this course successfully will be able to <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; width: 80%;"> <thead> <tr> <th style="text-align: center;">Course Learning Outcomes</th> <th style="text-align: center;"><i>Related Student Outcomes (SO)</i></th> </tr> </thead> <tbody> <tr> <td>CLO1: Explain the principles of Hydrographic Surveying</td> <td style="text-align: center;">SO1</td> </tr> <tr> <td>CLO2. Solving problems for Hydrographic Surveying</td> <td style="text-align: center;">SO2</td> </tr> </tbody> </table>		Course Learning Outcomes	<i>Related Student Outcomes (SO)</i>	CLO1: Explain the principles of Hydrographic Surveying	SO1	CLO2. Solving problems for Hydrographic Surveying	SO2																		
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Student Outcomes	<p>SO1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics, and using modern engineering tools [ABET 1].</p> <p>SO 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.</p>																									
Topics Covered	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">List of Topics</th> <th style="text-align: center;">Related CLOs</th> </tr> </thead> <tbody> <tr><td>Introduction</td><td style="text-align: center;">CLO1</td></tr> <tr><td>Positioning</td><td style="text-align: center;">CLO1</td></tr> <tr><td>Traverse</td><td style="text-align: center;">CLO1</td></tr> <tr><td>Triangulation</td><td style="text-align: center;">CLO2</td></tr> <tr><td>Sextant</td><td style="text-align: center;">CLO2</td></tr> <tr><td>GPS-RTK</td><td style="text-align: center;">CLO2</td></tr> <tr><td>Underwater Acoustic Positioning</td><td style="text-align: center;">CLO1</td></tr> <tr><td>Acoustic Doppler System</td><td style="text-align: center;">CLO1</td></tr> <tr><td>Water Depth Determination</td><td style="text-align: center;">CLO2</td></tr> <tr><td>LIDAR</td><td style="text-align: center;">CLO1</td></tr> <tr><td>Datum, Tides & Waves</td><td style="text-align: center;">CLO2</td></tr> </tbody> </table>		List of Topics	Related CLOs	Introduction	CLO1	Positioning	CLO1	Traverse	CLO1	Triangulation	CLO2	Sextant	CLO2	GPS-RTK	CLO2	Underwater Acoustic Positioning	CLO1	Acoustic Doppler System	CLO1	Water Depth Determination	CLO2	LIDAR	CLO1	Datum, Tides & Waves	CLO2
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	Photogrammetry	CLO1
	Remote Sensing	CLO1
Textbook(s) and Other Required Material	Textbook: 1- George Wood Logan, 2015. Elements of Hydrographic Surveying. Andesite Press, Annapolis, US Naval Institute, ID-13 9781230343303	
Grading System	Tutorials 20% 2 Mid-Terms 40% Final Exam 40%	
Instructors	Dr. Ashraf Farah (2A73/2); e-mail: afarah@ksu.edu.sa	
Date of Review	Nov, 2020	