



**SEMESTER LEARNING PLAN**  
**DEPARTMENT OF GEOMATICS ENGINEERING**  
**FACULTY OF CIVIL, PLANNING, and GEO ENGINEERING**

<b>PROGRAM</b>	<b>UNDERGRADUATE</b>		
<b>COURSE NAME</b>	<b>Seabed Features</b>	<b>CODE</b>	<b>RM184941</b>
<b>SEMESTER</b>	<b>VIII (eight)</b>	<b>CREDITS</b>	<b>3 (three)</b>
<b>LECTURERS</b>	<b>Danar Guruh Pratono S.T, M.T, Ph.D</b>		
<b>COURSE MATERIALS</b>	1	Definitions and various basic water features.	
	2	Backscatter, watercolumn and bathymetry data.	
	3	Identification of objects at the bottom of the sea	
	4	Instruments and software for identification of seabed features	
	5	The method used in data collection on seabed features.	
	6	Validating the sub-bottom profiler data.	
<b>EXPECTED LEARNING OUTCOMES THAT IMPOSED IN THE COURSE</b>	A	Able to apply mathematics, science, and engineering in the fields of geodesy, surveying, hydrography, remote sensing, photogrammetry, geographic information systems, and cadastral to gain a thorough. understanding of the principles of engineering	
	C	Able to identify, formulate, analyze and solve problems in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, and cadastral.	
	E	Able to apply information & communication technology and the latest technological developments in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, geographic information systems, and cadastral.	
<b>COURSE LEARNING OUTCOMES</b>	1	Able to explain about the definition and various basic water features.	
	2	Able to analyze backscatter data, watercolumn and bathymetry data from the results of hydrographic survey.	
	3	Able to identify objects at the bottom of the sea.	
	4	Able to explain the instruments used in data collection of seabed features and data processing software.	
	5	Able to explain method used in data collection on seabed features.	
	6	Able to explain sub-bottom profiler data validation procedures.	
<b>ABILITY CATEGORIES</b>	<i>Cognitive Prosecess</i>	<i>Analyse</i>	
	<i>Knowledge Domain</i>	<i>Procedural</i>	
	<i>Psychomotor</i>	<i>Conscious control</i>	
	<i>Affective</i>	<i>Change of attitude</i>	

Class	Lesson learning outcome	Criteria dan Assessment Indicator	Weight	Learning Materials	Learning Experience	Learning Methods	Estimated Time
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 - 2	Able to explain about the definition and various basic water features.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Definition of basic water features	Lectures	Teacher-centered learning	2 x 50'
					Discussion	Student-centered learning	2 x 50'

				Various basic water features	Exercise	Problem-based learning	2 x 50'
						Assignment 1: Investigating various kind od seabed features	
3-5	Able to analyze backscatter data, watercolumn and bathymetry data from the results of hydrographic survey.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	20%	Backscatter	Lectures	Teacher-centered learning	3 x 50'
				Watercolumn	Discussion	Student-centered learning	3 x 50'
				Bathymetry data	Exercise	Problem-based learning	3 x 50'
						Assignment 2: Identification of seabed features in a certain area by using data from GEBCO	
6-7	Able to identify objects at the bottom of the sea.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Wavelength	Lectures	Teacher-centered learning	2 x 50'
				Characteristic features that exist at the bottom of the sea	Discussion	Student-centered learning	2 x 50'
					Exercise	Problem-based learning	2 x 50'
8				Mid semester exam			
9 - 12	Able to explain the instruments used in data collection of seabed features and data processing software.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	30%	Sub-bottom profiler	Lectures	Teacher-centered learning	4 x 50'
				Side Scan Sonar			
				Multibeam Echosounder	Discussion	Student-centered learning	4 x 50'
				Magnetometer			
				UAV and ROV	Exercise	Problem-based learning	4 x 50'
				Software for processing seabed features			
13-14	Able to explain method used in data collection on seabed features.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Optical Method	Lectures	Teacher-centered learning	2 x 50'
				Acoustic Method	Discussion	Student-centered learning	2 x 50'
					Exercise	Problem-based learning	2 x 50'
15	Able to explain sub-bottom profiler data validation procedures.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Validating sub-bottom profiler data	Lectures	Teacher-centered learning	1 x 50'
					Discussion	Student-centered learning	1 x 50'

					Exercise	Problem-based learning	1 x 50'
16				Final semester exam			
			100%				