



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

PROGRAM	UNDERGRADUATE		
COURSE NAME	Hydrographic Data Management	CODE	RM184944
SEMESTER	Elective	CREDITS	2 (two)
LECTURERS	Danar Guruh Pratono S.T, M.T, Ph.D		
COURSE MATERIALS	1	A variety of primary and secondary data and their application in hydrographic surveys	
	2	Definition, parameters and framework of marine data spatial infrastructure (MSDI)	
	3	Definition of metadata, importance of metadata, standards used in metadata, general format of metadata used in hydrographic surveys.	
	4	Types of standards used in conducting hydrographic surveys and reviews of IHO (international Hydrographic Organization)	
	5	The techniques used in data collection in hydrographic surveys both horizontally and vertically: mechanical, acoustic and optic	
	6	Understanding the patch tests, various patch tests, the sequence of patch tests procedures and how to carry out the patch tests.	
	7	Beam spacing modes, ping modes, line running and survey speed	
	8	Multibeam echosounder data processing methods: line mode and area mode	
EXPECTED LEARNING OUTCOMES THAT IMPOSED IN THE COURSE	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	
	D	Able to perform spatial data acquisition using modern measurement methods, geospatial data processing, using industry standard software, and making standard designs and analyzes in the fields of geodesy, surveying, hydrography, remote sensing, photogrammetry, and cadastral.	
	G	Able to plan, perform and evaluate the process of surveying and mapping activities using the latest technology in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, and cadastral.	
COURSE LEARNING OUTCOMES	1	Able to explain data needed in hydrographic surveys.	
	2	Able to explain about marine spatial data infrastructure: understanding, parameters, framework and its application.	
	3	Able to understand metadata in hydrographic surveys.	
	4	Having knowledge about international hydrographic survey standards.	
	5	Able to explain the techniques used in data acquisition both vertically and horizontally.	
	6	Able to explain the implementation of patch tests (multibeam echosounder calibration) and the sequence of its procedures	
	7	Able to understand survey implementation using multibeam echosounder and survey design planning.	
	8	Able to do multibeam echosounder data processing with various methods and software.	
ABILITY CATEGORIES	<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 data needed in hydrographic surveys.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Definition of hydrographic data management	Lecture	Teacher-centered learning	2 x 50'
				Primary data and secondary data	Discussion	Student-centered learning	2 x 50'

				Introduction of data processing software	practice	Problem-based learning	2 x 50'
						Assignment 1: Investigating various softwares for data acquisition and processing	
3	Able to explain about marine spatial data infrastructure: understanding, parameters, framework and its application.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Definition of Marine Spatial Data Infrastructure (MSDI)	Lecture	Teacher-centered learning	1 x 50'
				MSDI parameters	Discussion	Student-centered learning	1 x 50'
				MSDI Framework	practice	Problem-based learning	1 x 50'
4-5	Able to understand metadata in hydrographic surveys.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Definition of metadata	Lecture	Teacher-centered learning	2 x 50'
				The standard used is metadata	Discussion	Student-centered learning	2 x 50'
				The metadata file format in the hydrographic survey	practice	Problem-based learning	2 x 50'
				The importance of metadata			
6-7	Having knowledge about international hydrographic survey standards.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Standard definition of hydrographic survey	Lecture	Teacher-centered learning	2 x 50'
				various standards used in hydrographic surveys	Discussion	Student-centered learning	2 x 50'
				IHO S-44 fifth edition 2008 (data acquisition)	practice	Problem-based learning	2 x 50'
8				Evaluasi Tengah Semester			
9 - 10	Able to explain the techniques used in data acquisition both vertically and horizontally.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Determination of vertical positions mechanically, acoustically and optically	Lecture	Teacher-centered learning	2 x 50'
				Mechanical, satellite and optical horizontal positioning	Discussion	Student-centered learning	2 x 50'
					practice	Problem-based learning	2 x 50'
11	Able to explain the implementation of patch tests (multibeam echosounder calibration) and the sequence of its procedures	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Definition of patch test	Lecture	Teacher-centered learning	1 x 50'
				Types and definitions of each patch test	Discussion	Student-centered learning	1 x 50'
				Patch test requirements and constraints	practice	Problem-based learning	1 x 50'
				The order of implementing the patch test			
12-13	Able to understand survey implementation using multibeam echosounder and survey design planning.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Beam spacing modes	Lecture	Teacher-centered learning	2 x 50'
				Lane of classification	Discussion	Student-centered learning	2 x 50'

				Maximum survey speed	practice	Problem-based learning	
				Ping modes and swath width		Assignment 2: Performing the data acquisition using hydrographical survey instrument from Geomatics engineering department	2 x 50'
14-15	Able to do multibeam echosounder data processing with various methods and software.	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Line mode	Lecture	Teacher-centered learning	2 x 50'
				Area mode	Discussion	Student-centered learning	2 x 50'
				Filtering	practice	Problem-based learning	
						Assignment 3: Designing and conducting the procedures of QPS and Eiva NaviSuite software processing data NaviSuite	2 x 50'
16				Evaluasi Akhir Semester			
			100%				