	INSTITUT TEKNOLOGI SEPULUH NOPEMBER **FACULTY OF CIVIL, PLANNING AND GEO ENGINEERING** **DEPARTMENT OF GEOMATICS ENGINEERING** **UNDERGRADUATE STUDY PROGRAM**	**Document Code**

SEMESTER LEARNING PLAN (SLP)

COURSE NAME	**CODE**	**COURSE GROUP**	**CREDITS (SKS)**		**SEMESTER**	**Date of Preparation**
Field Camp	CM234631	-	**T=2**	**P=2**	6	-

AUTHORIZATION	**SLP Developer**	**Course Group Coordinator**	**Head of Study Program**
	Lecturer Team	Hepi Hapsari Handayani, S.T., M.Sc., Ph.D.	Putra Maulida, S.T., M.T., Ph.D.

Learning Outcomes (LO)		
	Expected Learning Outcomes (ELO) that Imposed in the Course	
	ELO-5	Able to design survey and mapping activities using the latest technology in the fields of Geodesy and Surveying, Hydrography, Photogrammetry and Remote Sensing also Geographic Information Systems and Cadastral.
	ELO-7	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 and Surveying, Hydrography, Photogrammetry and Remote Sensing also Geographic Information Systems and Cadastral.
	ELO-10	Able to work in inter-disciplinary and inter-cultural teams so they can compete at national and international levels.
	Course Learning Outcomes (CLO)	
	CLO-1	Able to identify the problem of procuring base maps and thematic maps in accordance with the characteristics of the work area
	CLO-2	Able to design measurement and mapping activities to produce base maps and thematic maps, in accordance with the standards of the Geospatial Information Agency
	CLO-3	Able to establish alternative mapping designs using several methods directly and indirectly
	CLO-4	Able to determine the selected mapping design based on the conditions of the mapped area
	CLO-5	Able to implement the selected mapping design
	CLO-6	Able to validate and evaluate the results of mapping designs according to National and International standards

Matrix ELO-CLO

CLO	ELO-5	ELO-7	ELO-10
CLO-1			V
CLO-2	V		
CLO-3		V	
CLO-4		V	
CLO-5		V	
CLO-6	V		

Course Description	The Field Camp course is a capstone design course in the Department of Geomatics Engineering. That is, this course is an application of several courses that he has obtained until semester 5. What is expected from this Field Camp course is that students get real experience in the field (with actual field conditions) from a mapping activity that integrates several courses both using terestris methods and others in a certain area and time. Thus students are able to collect data directly with terestris (total station), extra terestris (GPS), photogrammetry, remote sensing, interviews (toponymy), process data and analyze measurement results. In addition, students are also expected to be able to make complete and accurate maps and be able to present in the form of reports in the form of books and presentation of results. This Field Camp is also a form of community service, where the final result of this Field Camp is in the form of a map that can be used by the village / area that is used as the object of mapping.
Course Materials	1. Methods of understanding the Terms of Reference (KAK), preliminary surveys, technical proposals for implementation, and occupational safety and security (K3) 2. Method of making horizontal control frame net design and vertical control frame and distribution of Ground Control Point (GCP) according to their respective regions; 3. Terrestrial, extraterrestrial, photogrammetric (UAV) and remote sensing measurement methods 4. Questionnaire design methods 5. Data processing methods of terrestrial, extraterrestrial, photogrammetry (UAV vehicles), and remote sensing 6. Survey of terrain names and toponymy 7. Cartography and presentation of basic and thematic maps 8. Quality control, validation and evaluation methods.
References	**Main :**
	1. Ghilani, C. C and P. R. Wolf. 2015. Elementary Surveying: An Introduction to Geomatics. Pearson Prentice Hall, Inc. 2. Abidin, H.Z., 2001. Geodesi Satelit. Jakarta : P.T. Pradnya Paramita 3. Ghilani, C. C., 2017. Adjustment Computation: Spatial Data Analysis, John Wiley & Sons, Inc. 4. SNI 19-6724-2002 mengenai Jaring Kontrol Horisontal

	5. SNI 19-6988-2004 mengenai Jaring Kontrol Vertikal dengan Metode Sipat datar 6. Peraturan Kepala Badan Informasi Geospasial No.3 Tahun 2016 tentang Spesifikasi Teknis Penyajian Peta Desa 7. Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 76 Tahun 2012 tentang Pedoman Penegasan Batas Daerah, Jakarta 8. Peraturan Badan Informasi Geospasial Nomor 12 Tahun 2017 Tentang Pedoman Pemetaan Wilayah Masyarakat Hukum Adat 9. Peraturan Badan Informasi Geospasial Nomor 6 Tahun 2018 Tentang Perubahan Atas Peraturan Kepala Badan Informasi Geospasial Nomor 15 Tahun 2014 Tentang Pedoman Teknis Ketelitian Peta Dasar **Additional :**
	1. Tumewu Liem, 1977, Engineering Survey, ITB. Bandung. 2. Hickerson, 1967, Route Location And Design. Mc Graw-Hill Book
Lecturer	Lecturer Team
Prerequisite	1. Survey and Mapping Management 2. Global Navigation Satellite System Survey

Class/ Week	Lesson Learning Outcome (Sub-CLO)	Valuation		Learning Forms, Learning Methods, Student Assignments /Task, [Estimated Time]		Learning Materials [References]	Weight (%)
		Indicators	Criteria	Offline	Online		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 - 2	Able to identify the problem of procuring base maps (topography) and thematic maps (potential maps) in accordance with the characteristics of the work area	1. Mastery in understanding KAK basic mapping survey on a scale of 1:1000 and thematic mapping on a scale of 1:2500 2. Completeness of identification of work areas 3. Completeness and depth of information based on preliminary surveys, including discussions with the Village Head for field orientation (transportation, accommodation), determination of work area boundaries, village potential 4. Mastery in making technical proposals for the implementation	1. Completeness of the material 2. Depth of explanation and effectiveness of communication 3. Attitude accuracy	1. Field practice [2 x 50'] 2. Discussion [2 x 50'] 3. Interview [2 x 50'] 4. Assistance, literature review [2 x 50']		1. Study the Terms of Reference (KAK) basic mapping survey at a scale of 1:1000 and thematic mapping at a scale of 1:2500 2. Identify work areas through interpretation of satellite imagery 3. Conducting a preliminary survey, including discussions with the Village Head for field orientation (transportation, accommodation),	10

		of work (HSE, RAB, schedules, methods, tools, materials)				determination of work area boundaries, village potential 4. Prepare technical proposals for the implementation of work (HSE, RAB, schedules, methods, tools, materials)	
3 - 4	Able to design measurement and mapping activities to produce base maps with a scale of 1:1000 and thematic maps with a scale of 1:2500	1. Accuracy in making horizontal control frame net design, vertical control frame and GCP distribution according to each region 2. Accuracy of questionnaire design for toponymy survey and potential mapping	1. Completeness of the material 2. Depth of explanation and effectiveness of communication 3. Attitude accuracy	1. Field practice [2 x 50'] 2. Discussion [2 x 50'] 3. Interview [2 x 50'] 4. Assistance [2 x 50']		1. Division of groups according to villages/hamlets - Create a horizontal control frame net design, vertical control framework and Ground Control Point (GCP) distribution according to each area 2. Design questionnaires for toponymy surveys and potential mapping	15
5 - 7	Able to determine alternative IGD and IGT mapping designs using several methods: terrestrial, photogrammetric, remote sensing, GNSS and toponymy	1. Accuracy in making alternative basic mapping surveys using terestris methods (polygon, tachimetry, longitudinal flat cypat, intersection, resection) and terestris extras (GNSS: static and RTK) 2. Accuracy in making alternative thematic mapping surveys using photogrammetry/remote sensing methods (interpretation, photo/image processing,	1. Completeness of the material 2. Depth of explanation and effectiveness of communication 3. Attitude accuracy	1. Field practice [3 x 50'] 2. Discussion [3 x 50'] 3. Interview [3 x 50'] 4. Assistance [3 x 50']		1. Create alternative basic mapping surveys using terestris methods (polygons, tachimetry, longitudinal flat sips, intersections, resections) and terestris extracurricular (GNSS: static and RTK) 2. Create alternative thematic mapping surveys using	15

		geometric correction, mosaic/photo map/image) 3. Accuracy in making alternative toponymy survey methods for potential mapping includes questionnaire surveys, interviews, literature reviews, participatory mapping.				photogrammetry/remote sensing methods (interpretation, photo/image processing, geometric correction, mosaic/photo map/imagery) 3. Creating alternative toponymy survey methods for potential mapping includes questionnaire surveys, interviews, literature reviews, participatory mapping.	
8 – 9	Able to determine the selected mapping design based on the conditions of the mapped area	1. Effectiveness in assigning the selected design for mapping	1. Completeness of the material 2. Depth of explanation and effectiveness of communication 3. Attitude accuracy	1. Field practice [2 x 50'] 2. Discussion [2 x 50'] 3. Interview [2 x 50'] 4. Assistance [2 x 50']		Determine the design chosen for: basic mapping which includes detailed topographs and boundaries, thematic mapping which includes potential and toponymy.	10
10 – 14	Able to implement the selected mapping design	1. Neatness, strength and suitability in installing BM points for horizontal, vertical, and GCP control frames according to specifications in KAK 2. Skills and proficiency in operating survey equipment for horizontal, vertical and GCP control frame measurements	1. Completeness of the material 2. Depth of explanation and effectiveness of communication 3. Attitude accuracy	1. Field practice [3 x 50'] 2. Discussion [3 x 50'] 3. Interview [3 x 50'] 4. Assistance [3 x 50'] 5. Community Service [8 x 50']		1. Perform BM point installation for horizontal, vertical, and GCP control frames according to specifications in KAK 2. Perform horizontal, vertical, and GCP control frame measurements	35

		3. Completeness of detailed measurements of the situation and suitability of regional boundaries 4. Depth of information based on potential mapping and toponymy surveys 5. The accuracy of the method and the correctness and completeness of the procedure for processing data for IGD and IGT 6. The effectiveness and interactivity of IGD and IGT information visualization				3. Take detailed measurements of the situation and regional boundaries 4. Conduct potency and toponymy mapping surveys 5. Processing data for IGD and IGT 6. IGD and IGT visualization.	
15 – 16	Able to validate mapping design results according to National and International standards	1. The correctness of IGD and IGT mapping results based on the quality control process 2. Accuracy of procedures and conformity of horizontal, vertical and GCP control framework measurement results with standard-based validation 3. Completeness and depth of reports, Effectiveness of presentation of results responsibly, honestly and in cooperation in accordance with professional ethics.	1. Completeness of the material 2. Depth of explanation and effectiveness of communication 3. Attitude accuracy	1. Field practice [2 x 50'] 2. Discussion [2 x 50'] 3. Interview [2 x 50'] 4. Assistance [2 x 50']		1. Quality Control of IGD and IGT mapping results 2. Validation of horizontal, vertical and GCP control framework measurement results 3. Preparation of the final report; Presentation of results responsibly, honestly and in collaboration in accordance with professional ethics.	15
Total							**100**