



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

Document Code

SEMESTER LEARNING PLAN (SLP)

COURSE NAME		CODE	COURSE GROUP	CREDITS (SKS)		SEMESTER	Date of Preparation
Spatial Data Mining		CM234997	Geoinformatics	T=1	P=1	Elective Course	-
AUTHORIZATION		SLP Developer		Course Group Coordinator		Head of Study Program	
		Agung Budi Cahyono, S.T., M.Sc, DEA		Agung Budi Cahyono, S.T., M.Sc, DEA		Putra Maulida, ST, MT, 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, surveying, hydrographic, remote sensing, photogrammetry, and cadastral.					
	ELO-6	Able to identify, formulate, analyze and solve problems in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, and cadastral.					
	Course Learning Outcomes (CLO)						
	CLO-1	Able to explain the understanding of fundamental concepts related to the use and implementation of data mining. pertambangan.					
	CLO-2	Able to design and implement data mining to analyze the required spatial data.					
	CLO-3	Able to analyze information generated from data mining techniques in solving problems in the geospatial field.					

		Matrix ELO – CLO							
		CPMK		ELO-5	ELO-6				
		CLO-1		V	V				
		CLO-2		V	V				
		CLO-3		V	V				
Course Description		This course discusses data mining concepts about the application of data mining concepts to geospatial problems. Some technical data Mining to produce information is also discussed, such as data mining processing methods, data sets, and data mining algorithms as well as data mining model evaluation. Spatial data mining emerged because of the large amount of data resources in the field. Currently, through the development of technology and the internet, data can be found in abundance but there is still little information of value. This valuable information can be obtained through several stages such as data cleaning, data selection, data exploration (data mining), and evaluation of results. So it can be concluded that spatial data mining is a process of producing spatial information that has value through exploring spatial data resources in the field. Spatial Data Mining is an interdisciplinary study related to data exploration. Spatial data mining is an iterative process involving several steps, including data selection, cleaning, preprocessing, and transformation; integration of information, analysis with computational algorithms and/or visual approaches, interpretation and evaluation of results.							
Course Materials		1.							
References		Main:							
		1.							
		Additional :							
		-							
Lecturer		1. Agung Budi Cahyono, S.T., M.Sc, DEA							
Prerequisite									
Class/ Week	Lesson Learning Outcome (Sub-CLO)	Evaluation		Forms of Learning, Learning methods,Student Assignments/Task, [Estimated Time]		Learning Materials [References]	Weight (%)		
		Indicators	Criteria and Form	Offline	Online				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
1 - 2	Introduction to Spatial Data Mining : Defining spatial data mining and its significance. Distinctions between traditional data		1. Completeness of the material 2. Depth of explanation and	1. Lecture [1 x 50’] 2. Discussion [1 x 50’]			10		

	mining and spatial data mining.		effectiveness of communication				
3 - 4	Spatial Data Preprocessing : cleaning and preprocessing spatial datasets. Handling missing or inaccurate spatial information.		1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [2 x 50'] 2. Discussion [1 x 50'] 3. Task [1 x 50']			20
5 - 6	Spatial Pattern Discovery : identifying patterns and trends within spatial data. Methods for discovering spatial correlations and associations.		1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [2 x 50'] 2. Discussion [2 x 50']			10
7	Clustering and Classification Techniques : application of clustering algorithms to group spatial data. Classification methods for predicting spatial attributes.		1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [2 x 50'] 2. Discussion, Task [1 x 50'] 3. Response/Exercise [1 x 50']			10
8	Midterm Evaluation / Midterm Exam						50
9 – 10	Spatial Data Mining Algorithms : overview of spatial data mining algorithms. Implementation and comparison of algorithms for different spatial patterns.		1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [2 x 50'] 2. Discussion, Task [1 x 50'] 3. Response [1 x 50']			20
11 – 13	Integration with GIS : incorporating spatial data mining results into		1. Completeness of the material	1. Lecture [2 x 50'] 2. Discussion, Task [1 x 50'] 3. Response/exercise [1 x 50']			15

	Geographic Information Systems. Utilizing GIS tools for enhancing spatial data analysis.		2. Depth of explanation and effectiveness of communication				
14 - 15	Applications of Spatial Data Mining : case studies and real-world applications. Examples of successful spatial data mining implementations.		1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [2 x 50'] 2. Discussion, Task [1 x 50'] 3. Response/exercise [1 x 50']			15
16	Final Semester Evaluation / Final Semester Examination						100