	SEMESTER LEARNING PLAN **DEPARTMENT OF GEOMATICS ENGINEERING** **FACULTY OF CIVIL, PLANNING, and GEO ENGINEERING**		
PROGRAM	**UNDERGRADUATE**		
COURSE NAME	**Three Dimesional Cadastre**	**CODE**	**RM184953**
SEMESTER	**Elective Course**	**CREDITS**	**2 (two)**
LECTURERS	**Agung Budi Cahyono (Coord)**		
	Yanto Budisusanto, Udiana W. Deviantari		

COURSE MATERIALS	1	The concept and understanding of 3D Dimension
	2	Registration system of Rights to Flats in Indonesia
	3	Right to Spatial Registration System in several countries other than Indonesia
	4	The future of space ownership systems (need for 3D cadastre)
	5	3-D Cadastral Modeling using UML
	6	3 Dimensional Spatial Database System Modeling
	7	Visualization and future opportunities for 3-dimensional spatial data
zc	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.
	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.
	F	Able to compile scientific reports and provide solutions based on leadership, creativity and communication skills as well as being responsible for the work done.
COURSE LEARNING OUTCOMES	1	Students are able to explain the concepts and principles of the registration system of rights to space (3-D Cadastre)
	2	Students are able to explain the legal / regulatory basis that applies in Indonesia for the activities of the registration system of rights to space and its implementation
	3	Students are able to explain the techniques and methods of acquiring spatial data in a 3-dimensional cadastral framework
	4	Students are able to visualize 3-dimensional spatial data using certain software
	5	Students are able to explain the implementation of 3-dimensional cadastral in several countries as a comparison
	6	Students are able to compile reports and present 3-dimensional cadastral registration systems verbally and in writing

ABILITY CATEGORIES	*Cognitive Prosecess*	*Analyse*
	Knowledge Domain	*Procedural*
	Psychomotor	*Conscious control*
	Affective	*Change of attitude*

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	Students are able to explain the basic concepts of the Spatial Database System	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	5%	Explanation of concepts and analogies	Lecture	Teacher-centered learning	1x(3x50')
				Discussion of examples in daily life	Discussion	Student-centered learning	
				Explanation of understanding concepts and terms	Literature review	Problem-based learning	

2	Students are able to explain about the architecture of the Database System	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	5%	Spatial Database Management System (SMBD) Database Position in the program	Lecture and discussion (Assignment 1)	Teacher-centered learning	1x(3x50')
				Database Implementation Architecture Database System Components	Literature review	Student-centered learning	
3	Students are able to explain about the Data Model in the Database System	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Data Model	The practice of identifying life around (real world) becomes a data model	Problem-based learning	1x(3x50')
				Database Schema Database Architecture	Lecture and discussion	Teacher-centered learning	
				Database Management System Component Database Management Classification Syste	Literature review (Assignment 2)	Student-centered learning	
4,5	Students are able to create tables in the Database Management System software	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	The concept of tables	Lecture and discussion	Teacher-centered learning	2x(3x50')
				Data characteristics in the table		Student-centered learning	
				Terminated data	Practice in making tables in Database Management System software	Problem-based learning	
				Table Normalization	Assignment 3		
6, 7	Students are able to create tables in the Database Management System software	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Data modeling approach Entity Relations Diagram Relationship Degree and Participation	Lecture and discussion	Teacher-centered learning	2x(3x50')
				Identification of the real world to create a Data Model Make ERD	Exercise (Assignment 4)	Student-centered learning	
				Database Physical Design in SMBD software	Practice in making several interconnected tables according to data rules		
8	Mid Semester Evaluation					- Writing Evaluation	2x50'
						- Discussion	1x50'
9	Students are able to do the Design Stages in making a	Material completeness, depth of explanation, effectiveness of	5%	Information System Function Information system cycle Database System Cycles	Lecture and discussion	Teacher-centered learning	1x(3x50')

	Database System	communication, accuracy of attitude		Database System Design	Exercise to do Database System Design	Problem-based learning	
10	Students are able to do queries in the database	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	5%	The Purpose and Definition of Query	Lecture and discussion	Teacher-centered learning	1x(3x50')
				Identity Constraint (main / guest)			
				Types of operations in the table	Exercise for making table	Student-centered learning	
				Algebra relations in the table			
				Query Implementation	Practice in making example queries on tables		
11,12	Students are able to enter and visualize spatial data in a spatial database	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	5%	DDL (Data Definition Language), DML (Data Manipulation Language) and Queries with SQL	Lecture and discussion	Teacher-centered learning	1x(3x50')
				Examples and exercises of DDL, DML and query using SQL in database algebraic relation operations	practice	Student-centered learning	
				Implementation of DDL, DML and Query in the database	Practice (Assignment 5)	Problem-based learning	
13, 14	Students are able to explore spatial data using various GIS software (paid and opensource)	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	10%	Concept and Definition of Spatial Database	Lecture and discussion	Teacher-centered learning	2x(3x50')
				Spatial Database Type and Format			
				Transactions in Spatial Database	Literature Review and Presentation	Student-centered learning	
				Operations in Spatial database in tables (spatial columns and spatial data input)	Practice (Assignment 6)	Problem-based learning	
				Spatial query in a spatial database			
				Spatial database visualization			
15	Mahasiswa mampu melakukan eksplorasi data spasial menggunakan berbagai perangkat lunak SIG (berbayar dan opensource)	Material completeness, depth of explanation, effectiveness of communication, accuracy of attitude	15%	Difference between SMBDS and Geodatabase	Lecture and discussion	Teacher-centered learning	2x(3x50')
				Visualization of spatial databases on various GIS software	Practice (Assignment 6)	Student-centered learning	
				Trial of two-way communication between SMBDS and GIS Software			
				Spatial query in SMBDS		Problem-based learning	
				Spatial Query in GIS Software			
16	Final Semester Evaluation					Final presentation evaluation	1x(3x50')
						TOTAL	16x(3x50')