	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
Three Dimesional Cadastre	CM234951	Surveying and Cadastre	T=2	P=1	Elective Course	-

AUTHORIZATION	SLP Developer	Course Group Coordinator	Head of Study Program
	Yanto Budisusanto, S.T., M.Eng.	Yanto Budisusanto, S.T., M.Eng.	Putra Maulida, S.T., M.T., Ph.D.

Learning Outcomes (LO)		
	Expected Learning Outcomes (ELO) that Imposed in the Course	
	ELO-2	Able to study and utilize science and technology in order to apply it to the areas of expertise in Geodesy and Surveying, Hydrography, Photogrammetry, and Remote Sensing, as well as Geospatial and Land Information, and able to make appropriate decisions from the results of their own work or group work in the form of a final project report or other forms of learning activities whose outcomes are equivalent to the final project through logical, critical, systematic and innovative thinking.
	ELO-6	Able to identify, formulate, analyze and solve problems in the fields of Geodesy and Surveying, Hydrography, Photogrammetry and Remote Sensing, as well as Geospatial and Land Information.
	ELO-7	Able to perform spatial data acquisition using modern measurement methods, geospatial data processing, using industry standard software, and making standard designs and analyses in the fields of Geodesy and Surveying, Hydrography, Photogrammetry and Remote Sensing, as well as Geospatial and Land Information.
	Course Learning Outcomes (CLO)	
	CLO-1	Students are able to explain the concepts and principles of space rights registration system (3-Dimensional Cadastre)
	CLO-2	Students are able to explain the legal/regulatory basis applicable in Indonesia for the activities of the space rights registration system and its implementation.
	CLO-3	Students are able to explain the techniques and methods of spatial data acquisition in a 3-dimensional cadastral framework
	CLO-4	Students are able to visualize 3-dimensional spatial data using certain software.
	CLO-5	Students are able to explain the implementation of 3-dimensional cadastre in several countries as a comparison.

<table>
<tr><td></td><td>CLO-6</td><td>Students are able to compile reports and present 3-dimensional cadastral registration systems orally and in writing</td></tr>
<tr><td></td><td colspan="2">Matrix ELO – CLO
<table>
<tr><th>CPMK</th><th>ELO-2</th><th>ELO-6</th><th>ELO-7</th></tr>
<tr><td>CLO-1</td><td>V</td><td></td><td></td></tr>
<tr><td>CLO-2</td><td>V</td><td></td><td></td></tr>
<tr><td>CLO-3</td><td></td><td>V</td><td>V</td></tr>
<tr><td>CLO-4</td><td></td><td>V</td><td></td></tr>
<tr><td>CLO-5</td><td></td><td>V</td><td></td></tr>
<tr><td>CLO-6</td><td></td><td>V</td><td></td></tr>
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<tr><td>Course Description</td><td colspan="2">In this course, students learn about the registration system for property rights of space. The implementation of the right of ownership of flats is the focus of this subject, especially in Indonesia. The registration system of right to space which is implemented broadly in several contries is also studied as comparison. This course also studies about the data acquisition techniques and methods which are then visualized in 3 dimensions using software that supports this.</td></tr>
<tr><td>Course Materials</td><td colspan="2">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</td></tr>
<tr><td>References</td><td colspan="2">Main:</td></tr>
<tr><td></td><td colspan="2">1. Undang-undang No. 20 Tahun 2011 Tentang Rumah Susun
2. Stoter, J., Oosterom, P., 2006, 3D Cadastre in an International Context Legal, Organizational, and Technological Aspects, CRC Press is an imprint of Taylor & Francis Group, USA</td></tr>
<tr><td></td><td colspan="2">Additional :</td></tr>
<tr><td></td><td colspan="2">1. http://www.gdmc.nl/3dcadastres/literature/
2. FIG, 2018a, Best Practises 3D Cadastres - Extended Version, International Federation of Surveyors (FIG), Copenhagen, Denmark
3. FIG, 2018b, Best Practises 3D Cadastres - FIG Report, International Federation of Surveyors (FIG), Copenhagen, Denmark</td></tr>
<tr><td>Lecturer</td><td colspan="2">Yanto Budisusanto, S.T., M.Eng.</td></tr>
<tr><td>Prerequisite</td><td colspan="2">-</td></tr>
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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	Able to explain the concept and understanding of 3-Dimensional Cadastre	Accuracy in explaining the concept and understanding of 3-Dimensional Cadastre	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Response [1 x 45']		Concept of 3-Dimensional Cadastre	5
2	Able to explain the definition, terms and implementation of Law No. 20 Th. 2011 on Flats	Accuracy in explaining the definition, terms and implementation of Law No. 20 Th. 2011 on Flats	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Task [1 x 45']		Terms and implementation of Law No. 20 Th. 2011 on Flats	15
3	Able to explain the utilization of space above and below ground.	Accuracy in explaining the utilization of space above and below ground.	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [2 x 45'] 2. Discussion [1 x 45']		The utilization of space above and below ground	5
4 – 5	Able to model business processes in a 3-dimensional cadastral	Accuracy in modeling business processes in a 3-dimensional cadastral	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion, Task [1 x 45'] 3. Response/Exercise [1 x 45']		Model business processes in a 3-dimensional cadastral system using UML and referring to LADM.	15

6 – 7	Able to create a relationship model between entities for the 3-dimensional cadastral process.	Accuracy in creating a relationship model between entities for the 3-dimensional cadastral process.	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Response [1 x 45']		Create a relationship model between entities for the 3-dimensional cadastral process	10
8	**Midterm Evaluation / Midterm Exam**						**50**
9 – 12	Able to create 3-dimensional object modeling	Accuracy in creating 3-dimensional object modeling	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Response [1 x 45']		Create 3-dimensional object modeling	10
13	Able to explore Physical Objects and Juridical Objects in 3D Cadastre	Accuracy in exploring Physical Objects and Juridical Objects in 3D Cadastre	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Response [1 x 45']		Physical Objects and Juridical Objects in 3D Cadastre	10
14	Able to explain the types of 3-dimensional object modeling	Accuracy in explaining the types of 3-dimensional object modeling	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Task [1 x 45']		Types of 3-dimensional object modeling in order to visualize 3-dimensional spatial data	15
15	Able to implement 3d cadastral object	Accuracy in implementing 3d cadastral object	1. Completeness of the material 2. Depth of explanation and effectiveness of communication	1. Lecture [1 x 45'] 2. Discussion [1 x 45'] 3. Task [1 x 45']		Implementation of 3D Cadastral Object expansion	15

16	**Final Semester Evaluation / Final Semester Examination**	**100**