

	UNIVERSITAS PENDIDIKAN INDONESIA SEMESTER LEARNING PLAN (RPS)
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COURSE IDENTITY

Course Name	Course Code	Credits	Workload	Course Group	Semester	Prerequisite Course	Date of Issue
CADASTRAL SURVEY	SA504	2	90	Elective	5	Land Measurement, Terrestrial Mapping	2025-09-09 11:26:56

Prepared by Course Lecturer	Reviewed by Study Programme QA Team	Approved by Head of Study Programme
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COURSE DESCRIPTION AND GRADUATE LEARNING OUTCOMES (CPL)

Course Description	The Cadastral Survey course covers the concepts, principles, and fundamental techniques of surveying used for land measurement and mapping for legal and land administration purposes. The course teaches students about the importance of cadastral surveys in the context of land rights management, land certification, and the legal management and mapping of land boundaries. Students will be introduced to various surveying methods and instruments, ranging from classical measurement techniques to modern technologies such as GPS (Global Positioning System) and GIS (Geographic Information System). In addition, the course covers land regulations, particularly those related to agrarian law and land registration procedures.
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No.	Graduate Learning Outcomes (CPL) Assigned to This Course
1	To understand the basic principles of cadastre, including the history, regulations, and procedures related to land surveying and management.
2	To be able to use surveying instruments (such as total station, GPS, and mapping software) effectively and efficiently.
3	To be able to conduct accurate measurements and record field data.
4	To be able to analyse survey data to produce relevant and useful information for land management.
5	To be able to produce clear and informative maps based on collected data.
6	To be able to compile structured survey reports covering methodology, results, analysis, and recommendations.
7	To be able to present survey results effectively, both orally and in writing.
8	To understand and apply professional ethics in surveying practice, including honesty, transparency, and responsibility towards data and information.
9	To be able to work effectively in a team, communicate well, and contribute to group discussions.
10	To be able to evaluate survey processes and outcomes, and reflect on experiences to improve future cadastral survey practice.
11	To be able to keep abreast of the latest technological developments in surveying and mapping, and apply them in cadastral practice.

No.	Course Learning Outcomes (CPMK)
1	Students are able to explain the basic concepts of cadastre, its functions, and its importance in land management.
2	Students are able to use surveying instruments such as total station, GPS, and other tools appropriately and efficiently.
3	Students are able to design and carry out field surveys based on a methodology appropriate to the survey objectives.
4	Students are able to process and analyse survey data using relevant software to produce accurate information.
5	Students are able to compile survey maps using GIS software, depicting information clearly and informatively.
6	Students are able to compile systematic survey reports covering methodology, analysis, and survey results comprehensively.
7	Students understand and apply ethical principles in survey practice, including honesty and responsibility towards data.

8	Students are able to work within a team, collaborate, and communicate effectively in the context of survey projects.
9	Students are able to evaluate surveying practice experiences, identifying strengths and areas for improvement.

No.	CPMK	Sub-CPMK
1	CPMK - 1	To explain the definition of cadastre and its role in land management.
2	CPMK - 1	To identify regulations and policies related to cadastre at the local and national levels.
3	CPMK - 2	To use measuring instruments (total station, GPS) correctly and effectively.
4	CPMK - 2	To carry out appropriate measurement procedures to ensure data accuracy.
5	CPMK - 3	To plan survey activities based on objectives and user needs.
6	CPMK - 3	To identify factors affecting the implementation of field surveys.
7	CPMK - 4	To use statistical and data processing software to analyse survey results.
8	CPMK - 4	To apply data processing techniques to produce useful information.
9	CPMK - 5	To produce thematic maps based on collected data.
10	CPMK - 6	To compile survey reports covering methodology, results, and analysis.
11	CPMK - 1	To present reports clearly and systematically, both orally and in writing.
12	CPMK - 7	To understand ethical principles in data collection and processing.
13	CPMK - 8	To collaborate effectively in a team and communicate survey results to stakeholders appropriately.
14	CPMK - 9	To conduct an evaluation of the survey process and outcomes.

No.	Course Materials
1	Introduction to Cadastre
2	Cadastral Regulations and Policy
3	Surveying Instruments and Technology
4	Survey Methods
5	Survey Planning
6	Field Preparation
7	Mid-Semester Examination (UTS)
8	Field Survey Implementation
9	Survey Data Processing
10	Data Analysis
11	GIS Mapping
12	Survey Results Reporting
13	Presentation of Survey Results
14	Ethics in Cadastral Surveying
15	Evaluation and Reflection

16	Final Semester Examination (UAS)
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Demonstrable Learning Outcomes at the End of the Course	Land Parcel Map and Land Value Map.
Learning Strategy	Case Method ✓
Learning Steps	1. Theoretical Introduction to Cadastre: Understanding the basic concepts, definitions, objectives, and importance in land management. Regulations: Studying the governing policies of the cadastral system. 2. Survey Methodology: Measurement Methods: Understanding measurement methods (total station, GPS, etc.). Data Collection Techniques: Teaching manual and digital data collection techniques. 3. Field Practice: Survey Preparation: Site selection and equipment setup. Survey Implementation: Field surveys, data recording, and measurements. Data Processing: Using appropriate software. 4. Data Analysis and Interpretation: Analysing collected data for accurate land information. Mapping: Using GIS software to visualise data. 5. Reporting: Compiling a report covering all survey results and generated maps. Presenting results to lecturers and students. 6. Evaluation and Reflection: Analysing what went well and what needs improvement. Identifying lessons learned for future application.

No.	References
1	Smith, R. J. (2018). Cadastre: Principles and Practice. New York: Academic Press.
2	Jones, K. L. T. (2020). Surveying and Land Information Science. Boston: Pearson.
3	Ahmad, M. F., & Wong, L. H. (2019). Geographic Information Systems in Cadastre: Theory and Practice. London: Routledge.
4	Zhao, S., & Zhang, L. (2021). The role of cadastral surveying in land administration. Journal of Land Use Science, 16(4), 305–319.
5	Van Oosterom, H. G., & Van der Molen, R. P. K. (2020). Cadastral data models and their applications. Land Use Policy, 94, 104550.
6	Smith, D. R., & Brown, E. J. (2019). Advances in cadastral surveying techniques. In Proceedings of the International Conference on Land Administration (pp. 150–162). Lisbon: FIG.
7	FAO. (2021). Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests.
8	UNECE. (2020). Guidelines on Land Administration in the Digital Age. Geneva: UNECE.

LEARNING PLAN

We ek	Sub-CPMK	Sub-CPMK Achievement Indicators	Course Materials	Assess ment Form (te st/non-te st)	As ses sm ent We igh t (%)	Synchron ous (face-t o-face and virtual)	Asynchro nous (individual and group assignme nts)	Dur atio n	Ref ere nce No.	Acces s Time
1	To explain the definition of cadastre and its role in land management.	Students can accurately state and explain the definition of cadastre. Students can differentiate cadastre from related terms such as land measurement and land registration.	Introduction to Cadastre	Participat ory	5	Face-to-fac e	Structured group FGD	2 hrs	1–8	01-09- 2025 08:40
2	To identify regulations and policies related to cadastre at local and national levels.	Students can state and explain the main regulations governing cadastre at the national level, such as the Basic Agrarian Law. Students can identify regional regulations related to cadastre.	Cadastral Regulations and Policy	Participat ory	5	Face-to-fac e	Structured group FGD	2 hrs	1–8	12-09- 2024 07:00
3	To use measuring instruments (total station, GPS) correctly and effectively.	Students can explain the function and main components of total station and GPS. Students can identify various types of measuring instruments.	Surveying Instruments and Technology	Participat ory	5	Face-to-fac e	Structured group FGD	2 hrs	1–8	19-09- 2024 07:00
4	To carry out appropriate measurement procedures to ensure data accuracy.	Students can explain the correct measurement procedure steps for total station and GPS. Students can identify factors that may affect measurement accuracy.	Survey Methods	Participat ory	5	Face-to-fac e	Structured group FGD	2 hrs	1–8	26-09- 2024 07:00

5	To plan survey activities based on objectives and user needs.	Students can clearly explain survey objectives and their relevance to user needs. Students can differentiate between various survey objectives.	Survey Planning	Participatory	5	Face-to-face	Structured group FGD	2 hrs	1–8	03-10-2024 07:00
6	To identify factors affecting the implementation of field surveys.	Students can explain the various factors (internal and external) that may affect field survey implementation. Students can categorise these into technical, environmental, and social factors.	Field Preparation	Participatory	5	Face-to-face	Structured group FGD	2 hrs	1–8	10-10-2024 07:00
7	MID-SEMESTER EXAMINATION (UTS)				5					17-10-2024 07:00
8	To collaborate effectively in a team and communicate survey results to stakeholders.	Students can clearly explain their role and responsibilities within the survey team. Students can adapt to assigned roles and contribute accordingly.	Field Survey Implementation	Participatory	10	Face-to-face	Structured group FGD	2 hrs	1–8	24-10-2024 07:00
9	To apply data processing techniques to produce useful information.	Students can explain relevant data processing techniques, including statistical analysis, spatial data processing, and image processing.	Survey Data Processing	Participatory	10	Face-to-face	Structured group FGD	2 hrs	1–8	31-10-2024 07:00
10	To use statistical and data processing software to analyse survey results.	Students can explain the functions of statistical software (e.g., SPSS, R, or Excel). Students can select appropriate software based on data type.	Data Analysis	Participatory	2	Face-to-face	Structured group FGD	2 hrs	1–8	02-12-2024 07:00

11	To apply data processing techniques to produce useful information.	Students can explain the basic concepts of data processing in cadastral survey context. Students can identify various types of data and relevant analyses.	GIS Mapping	Participatory	5	Face-to-face	Structured group FGD	2 hrs	1–8	06-12-2024 07:00
12	To compile survey reports covering methodology, results, and analysis.	Students can compile reports with a clear and systematic structure (introduction, methodology, results, analysis, conclusion).	Survey Results Reporting	Participatory	10	Face-to-face	Structured group FGD	2 hrs	1–8	09-12-2024 07:00
13	To present reports clearly and systematically, both orally and in writing.	Students can deliver cadastral survey reports orally with clear articulation.	Presentation of Survey Results	Participatory	10	Face-to-face	Structured group FGD	2 hrs	1–8	13-12-2024 07:00
14	To understand ethical principles in data collection and processing.	Students can explain the basic concepts of ethics in data collection and processing.	Ethics in Cadastral Surveying	Participatory	5	Face-to-face	Structured group FGD	2 hrs	1–8	16-12-2024 07:00
15	To conduct an evaluation of the survey process and outcomes.	Students can explain criteria for evaluating cadastral survey process and outcomes (accuracy, timeliness, data relevance).	Evaluation and Reflection	Participatory	5	Face-to-face	Structured group FGD	2 hrs	1–8	20-12-2024 07:00
16	FINAL SEMESTER EXAMINATION (UAS)				8					23-12-2024 07:00

STUDENT LEARNING WORKLOAD

Activity	Synchronous (Face-to-face / Virtual)	Asynchronous (Structured / Independent)	Student Learning Preparation	Total Learning Hours
Lectures/Tutorials	14 × 90 min = 1,260 min	—	14 × 10 min = 140 min	1,400 min (23.3 hrs)
Project-based Learning	8 × 120 min = 960 min	—	6 × 30 min = 180 min	1,140 min (19.0 hrs)
Discussion (Case-based)	4 × 60 min = 240 min	—	—	240 min (4.0 hrs)
TOTAL (Learning)				2,780 min (46.3 hrs)
ASSESSMENT				
Participation During Learning	14 × 60 min = 840 min	—	—	840 min (14.0 hrs)
Project Work	4 × 165 min = 660 min	—	—	660 min (11.0 hrs)
Assignments	4 × 240 min = 960 min	—	—	960 min (16.0 hrs)
Quizzes	4 × 10 min = 40 min	—	—	40 min (0.7 hrs)
Formative	—	—	—	60 min (1.0 hrs)
Summative	—	—	—	60 min (1.0 hrs)
TOTAL (Assessment)				2,620 min (43.7 hrs)
TOTAL WORKLOAD				5,400 min (90 hrs)
Ideal Hours				90 hrs
Credits (SKS)				2
Conformity with Credit Hours				COMPLIANT

CPMK ASSESSMENT CRITERIA

No.	CPMK	Taxonomy	Weight (%)	CPMK Achievement Criteria
1	Explain basic cadastre concepts, functions, and importance in land management.	1	20	0% of all students achieve a minimum score of 0 (scale of 100).
2	Use surveying instruments (total station, GPS, etc.) correctly and efficiently.	2	10	0% of all students achieve a minimum score of 0 (scale of 100).
3	Design and carry out field surveys based on appropriate methodology.	2	10	0% of all students achieve a minimum score of 0 (scale of 100).
4	Process and analyse survey data using relevant software.	3	17	0% of all students achieve a minimum score of 0 (scale of 100).

5	Compile survey maps using GIS software, depicting information clearly.	3	0	0% of all students achieve a minimum score of 0 (scale of 100).
6	Compile systematic survey reports covering methodology, analysis, and results.	4	10	0% of all students achieve a minimum score of 0 (scale of 100).
7	Understand and apply ethical principles in survey practice.	4	5	0% of all students achieve a minimum score of 0 (scale of 100).
8	Work in a team, collaborate, and communicate effectively.	4	10	0% of all students achieve a minimum score of 0 (scale of 100).
9	Evaluate survey practice experiences, identifying strengths and areas for improvement.	4	5	0% of all students achieve a minimum score of 0 (scale of 100).

COLLABORATIVE TASK DESIGN

Task Title	Land Parcel Mapping
Learning Method	Case Method
Assessment Weight	75
Sub-CPMK	To explain the definition of cadastre and its role in land management.
Task Description	The land parcel mapping survey task is carried out to produce accurate maps and information for land management, land use planning, and regional development. This task also supports data-driven decision-making in the context of natural resource management.

Assignment Steps

No.	Step
1	Preparation and Planning – Preliminary Data Collection: Gathering initial information about the location, including land boundaries, owners, and related documents. Methodology Planning: Determining the appropriate survey method based on location characteristics.
2	Survey Implementation – Field Measurement: Using appropriate instruments (total station or GPS) to determine boundaries and land areas. Data Recording: Recording all measurement data accurately and systematically.
3	Data Processing – Spatial Data Processing: Using mapping software (GIS or CAD) to process collected data. Data Analysis: Analysing data for characteristics including slope, land use, and development potential.
4	Report Compilation – Documenting results: Compiling a survey report covering methodology, measurement results, analysis, and generated maps. Providing land use recommendations based on survey results.
5	Presentation of Results – Presenting survey results to stakeholders (land owners, local government, relevant institutions) clearly and informatively. Responding to questions and feedback.
6	Reflection and Evaluation – Evaluating the survey process, identifying challenges, and formulating solutions. Reflecting on experience and identifying areas for skill development.

Assessment Indicators, Criteria, and Weights

No.	Indicator & Criteria	Weight
1	Data Accuracy – Accuracy of coordinate measurements; consistency of data between field measurements and map results.	30%
2	Survey Methodology – Clarity and adequacy of chosen survey method; adherence to standard data collection procedures.	20%
3	Quality of Produced Map – Legibility and aesthetics (colours, symbols, labels); accuracy of physical feature representation.	20%
4	Data Analysis and Interpretation – Ability to analyse data and draw appropriate conclusions; presentation of relevant recommendations.	15%
5	Documentation and Reporting – Report structure; accuracy of references and data sources used.	10%
6	Presentation of Results – Clarity in conveying information; ability to answer questions and explain results.	5%

Implementation Schedule	Land parcel survey and mapping: 100 days
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References

No.	References
1	Smith, R. J. (2018). Cadastre: Principles and Practice. New York: Academic Press.
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