



UNIVERSITAS PENDIDIKAN INDONESIA

SEMESTER LEARNING PLAN (RPS)

COURSE INFORMATION

Course Name	Course Code	Credits	Workload	Course Group	Semester	Prerequisite Course	Date of Issue
WEBGIS	SA415	3	135	Core Study Program Course	2	GIS, Spatial Programming	2025-09-09 11:26:56

Prepared by	Reviewed by	Approved by
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COURSE DESCRIPTION AND LEARNING OUTCOMES

Course Description	The WebGIS course is a core course offered to students of the Geographic Information Science (SaIG) study program. It is an advanced course that builds on Geographic Information Systems and programming fundamentals, oriented toward the theory, concepts, and implementation of WebGIS. In this course, students study the theoretical dan development and creation of Geographic Information Systems-based web applications. Upon completing this course, students are expected to understand and implement WebGIS development for geographical studies		
Program Learning Outcome Assigned in the Course	1	• S2 Upholding humanistic values in carrying out duties and responsibilities based on religion, moral principles, and ethics	
	2	• S3 Contributing to the improvement of community, national, and civilizational quality of life based on Pancasila;	
	3	• S6 Collaborating and demonstrating social sensitivity and concern for society and the environment	
	4	• S9 Demonstrating a responsible attitude toward work within one's field of expertise independently.	
	5	• P1 Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to solve geospheric problems and developing models and methods for solving geospheric problems	
	6	• KU1 Capable of applying logical, critical, systematic, and innovative dan thinking in the context of developing or implementing knowledge and geographical that that observes and applies humanistic values in accordance with the relevant field of expertise;	
Course Learning Outcome (CPMK)	1	• KU1 Capable of applying logical, critical, systematic, and innovative dan thinking in the context of developing or implementing knowledge and geographical that that observes and applies humanistic values in accordance with the relevant field of expertise;	
	2	• KU2 Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing science and technology that observes dan of applying humanistic values in accordance with one's expertise, based on scientific rules, procedures, dan ethics in order to in the context of produce solutions, ideas, designs, or artistic critiques;	
	3	• KU4 Capable of making well-informed decisions in in the context of developing problem-solving within the field of expertise, based on based on information and data analysis;	
Sub-CPMK	1	CPMK - 1	• Contributing to the improvement of community, national, and civilizational quality of life based on Pancasila (S3). • Collaborating and dan demonstrating social sensitivity and concern for society dan environment (S6). • Demonstrating a responsible attitude toward work within one's field of expertise independently (S9)
	2	CPMK - 2	• Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to solve geospheric problems, and developing model dan metode to solve pemecahan within problems (P1). • Capable of mastering the theoretical concepts of Geographic Information Systems, spatial database concepts, and spatial modeling concepts (P2). • Capable of applying logical, critical, systematic, and innovative thinking in the context of developing or implementing knowledge and technology that observes and applies humanistic values in accordance with the relevant field of expertise (KU2).

	3	CPMK - 3	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing science and technology technology that memperhatikan dan of applying humanistic values in accordance with one's expertise, based on scientific rules, procedures, dan scientific ethics in order to produce solutions, ideas, designs, or artistic critiques (KU2). • Capable of composing scientific descriptions of the above study results in the form of a thesis or final assignment report and uploading it to the university's website (KU3). • Capable of making well-informed decisions in in the context of developing problem-solving within the field of expertise, based on based on information and data information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, and evaluating analytical models and theories of spatial information based on science and technology (KK1)
Course Materials	1	Course introduction (discussion of the course system, syllabus, assignments, and examinations to be completed).	
	2	• Website foundations, theory, and web analysis design	
	3	a. History and development b. WebGIS functions c. Role of WebGIS d. Technical implementation of WebGIS e. Types and examples of	
	4	• Introduction to web editor applications in general	
	5	a. Website content management b. Menu pages c. HTML language d. Role and functions of HTML	
	6	a. Content management system fundamentals b. Management system functions c. Content management system system	
	7	a. Definition and introduction to databases and DBMS b. Types of databases and DBMS c. Database and DBMS components d. Data data	
	8	Midterm Examination	
	9	a. WMS (Web Map Service) b. WFS (Web Feature Service)	
	10	a. Introduction to OpenGeo Suite b. Installation of OpenGeo Suite c. OpenGeo Suite Dashboard d. Introduction to GeoServer e. Data sources and GeoServer GeoServer f. GeoServer administration interface g. Creating a new project	
	11	a. Introduction to GeoExplorer b. GeoExplorer interface, navigation tools, and styling panel. c. Login GeoExplorer d. Layer styling in the context of GeoExplorer e. Map editing f. Saving and map layout g. Publishing map widgets h. Printing statistical maps and calling services in desktop applications	
	12	Praktik tahap 1 Implementasi Geoserver	
	13	Praktik tahap 3 Implementasi Geoserver	
	14	Praktik tahap 4 Implementasi Geoserver	
	15	Praktik tahap 5 Implementasi Geoserver	
	16	Final Examination	
Learning outcomes demonstrated at the end of the course *)	1. Understanding WebGIS Concepts 2. Spatial Data Processing dan and Management Data 3. WebGIS Application Development 4. Spatial Data Analysis dan and Visualization Data 5. WebGIS Implementation and Publication		

Learning Strategy	✓	Case Method
		Team based Project
		Others
Learning Stages	Introduction & Introduction to WebGIS: Understanding the fundamental concepts of WebGIS and its differences from desktop GIS. Identifying the main components of WebGIS: spatial data, GIS server, and user interface. Spatial Data Processing: Collecting and preparing spatial data in shapefile, GeoJSON, or raster format. Performing data preprocessing using QGIS or ArcGIS before uploading to WebGIS. Data Management and Storage: Using spatial databases such as PostgreSQL/PostGIS. Uploading data to a GIS server (GeoServer implementing MapServer). WebGIS Application Development Using the Leaflet or OpenLayers library for map visualization. Integrating the backend with APIs such as GeoDjango or Node.js. Testing and Implementation: Testing interactive features (zoom, data query, layer switching). Optimizing the performance and responsiveness of WebGIS before publication.	
References	1	Didik Dwi Prasetyo, 2003. PHP and MySQL Collaboration for Building Interactive Web Databases. Elexmedia Komputindo, Jakarta
	2	Setha Sidiq, 2004. Web Programming with PHP. Informatika Publisher, Bandung
	3	Abdul Kadir, 2002 : Web Programming Covering HTML, CSS, : HTML, CSS, Javascript, PHP. JavaScript, PHP. Publisher: Andi Yogyakarta. IG (Geospatial Information) 2015. WebGIS Development Module with OpenGeo Suite.
	4	Andersen. (2015) Implementing presentation in Covering server Application with Emphasis on User Experience. Department of Computing, Mathematics and Physics, Bergen University College.
	5	Pinde Fu. (2012). Web GIS: Principle and Application. Professional Service Division. ESRI.
	6	Mathiyalagan V, Grunwald S, Reddy KR, Bloom SA. A and geodatabase for Florida's wetlands. Computers and electronics in agriculture. 2005 Apr 1;47(1):69-75.
	7	Kearns FR, Kelly M, Tuxen KA. Everything happens somewhere: using webGIS as a tools, for sustainable natural resource management. Frontiers in Ecology and the Environment. 2003 Dec;1(10):541-8.
	8	Liu X, Han J, Zhong Y, Han C, He X. Implementing on Hadoop: A case study of improving small file I/O performance on HDFS. In2009 IEEE International Conference on Cluster Computing and Workshops 2009 Aug 31 (pp. 1-8). IEEE.
	9	Grecea C, Herban S, Vilceanu CB. WebGIS solution for urban planning strategies. Procedia engineering. 2016 Jan 1;161:1625-30.

LEARNING PLAN

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Methode (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
1	- Contributing to the improvement of community, national, and civilizational quality of life based on Pancasila (S3). - Collaborating and demonstrating social sensitivity and concern for society and the environment (S6). - Demonstrating a responsible bertanggungjawab atas pekerjaan the field bidang keahliannya secara mandiri (S9)	Understanding the objectives, scope, and procedures of the course, including explanations of assignments, examinations to be completed, question types, and reference sources.	Course introduction (discussion of the course system, syllabus, assignments, dan ujian and examinations to be completed).	Participatory	5	Face-to-interface,	Project	3	1,3,5	03-02-2025 07:01
2	- Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to geospheric geospheric problems, and developing model for solving geospheric problems (P1). - Capable of mastering the theoretical concepts of Geographic Information Systems, spatial database concepts, and spatial modeling concepts (P2). - Capable of applying logical, critical, and innovative and innovative thinking in the context of developing implementing or implementing knowledge and technology that observes and applies humanistic humanistic values in accordance with of expertise, the relevant field of expertise (KU2).	Website Foundations the Website and methods creation design	Course course, (discussion of the course system, syllabus, assignments and examinations technology that to be completed). completed).	Participatory	5	Face-to-interface,	Independent Assignment	3	2,3,7	10-02-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
3	- Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to solve geospheric problems, and developing models and methods for solving geospheric problems (P1). - Capable of mastering the theoretical concepts of Geographic Information Systems, spatial database concepts, and spatial modeling concepts (P2). - Capable of applying logical, critical, systematic, and innovative thinking in the context of developing or implementing knowledge and technology that observes and applies humanistic values in accordance with the relevant field of expertise (KU2).	WebGIS Fundamentals	a. History and development b. WebGIS functions c. Role of WebGIS d. Technical implementation of WebGIS e. Jenis and examples of WebGIS	Participatory	5	Face-to-interface,	Tugas mandiri	3	4,6,7,8,9	17-02-2025 07:00
4	- Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to solve geospheric problems, and developing models and methods for solving geospheric problems (P1). - Capable of mastering the theoretical concepts of Geographic Information Systems, spatial database concepts, and spatial modeling concepts (P2). - Capable of applying logical, critical, systematic, and innovative thinking in the context of developing or implementing knowledge and technology that observes and applies humanistic values in accordance with the relevant field of expertise (KU2).	a. Adobe Dreamweaver b. System notepad c. Blog d. Content management system (CMS)	Introduction to web editor applications in general	Multiple Choice	5	Face-to-interface,	Tugas mandiri	3	2,3,8,9	24-02-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
5	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	• Introduction to HTML	a. Website content management b. Menu pages c. HTML language d. Role dan functions of HTML	Participatory	5	Practicum	Project	3	1,3,6,7	03-03-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
6	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	• Introduction to Content Management Systems	a. Content management system fundamentals system b. Management system functions c. Content management system system	Multiple Choice	5	Practicum	Project	3	3,4,5,6	10-03-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
7	• Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to solve geospheric problems, and developing models and methods for solving geospheric problems (P1). • Capable of mastering the theoretical concepts of Geographic Information Systems, spatial database concepts, and spatial modeling concepts (P2). • Capable of applying logical, critical, systematic, and innovative thinking in the context of developing or implementing knowledge and technology that observes and applies humanistic values in accordance with the relevant field of expertise (KU2).	• Fundamental Concepts of Databases data • Database Management Systems (DBMS)	a. Definition and introduction to databases and DBMS b. Types of databases and DBMS c. Database data dan DBMS d. Data data	Observation	5	Practicum	Project	3	1,3,5,9	17-03-2025 07:00
8	Midterm Examination				15					24-03-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
9	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	• WebGIS Working System • Examples	a. WMS (Web Map Service) b. WFS (Web Feature Service)	Observation	5	Practicum	Project	3	6,7,8	31-03-2025 07:01

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
10	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	• Fundamental s and Applications of OpenGeo Suite and GeoServer	a. Introduction to OpenGeo Suite b. Installation of OpenGeo Suite c. OpenGeo Suite Dashboard d. Introduction to GeoServer e. Data sources and GeoServer components f. GeoServer administration interface g. Creating a new project	Observation	5	Practicum	Project	3	4,5,6,7	07-04-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
11	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	• Fundamental s and Applications of GeoServer Service GeoServer	a. Introduction to GeoExplorer b. GeoExplorer interface, navigation tools, styling panel. c. Login to GeoExplorer d. Layer styling in GeoExplorer e. Map editing f. Saving and map layout g. Publishing map widgets h. Printing statistical maps dan calling services in desktop applications	Observation	5	Practicum	Project	3	3,6,7,8	14-04-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
12	• Capable of mastering the theoretical concepts of geographical science, geospatial technology applications to solve geospheric problems, and developing models and methods for solving geospheric problems (P1). • Capable of mastering the theoretical concepts of Geographic Information Systems, spatial database concepts, and spatial modeling concepts (P2). • Capable of applying logical, critical, systematic, and innovative thinking in the context of developing or implementing knowledge and technology that observes and applies humanistic values in accordance with the relevant field of expertise (KU2).	Practicum: Building WebGIS using GeoServer	Practicum: Stage 1 GeoServer Implementation	Observation	5	Practicum	Project	3	3,4,5,6	25-04-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
13	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	Practicum: Building WebGIS using GeoServer	Practicum: Stage 3 GeoServer Implementation	Observation	5	Practicum	Project	3	3,4,6,9	02-05-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
14	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	Practicum: Building WebGIS using GeoServer	Practicum: Stage 4 GeoServer Implementation	Multiple Choice	5	Practicum	Project	3	3,6,9	05-05-2025 07:00

Week -	Sub-CPMK	Learning Indicator	Course Material	Assessment		Learning Method		Duration (hours)	Reference	Access Time
				Assessment Method (test/non-test)	Assessment Weighting (%)	Synchronous	Asynchronous			
15	• Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of developing or implementing knowledge and technology implementing knowledge and science and technology that observes and applies humanistic values in accordance with expertise based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, implementing kritik seni (KU2). • Capable of composing scientific descriptions of the above study results in bentuk skripsi implementing laporan tugas akhir and uploading it to the university's website (KU3). • Capable of making well-informed decisions in the context of problem-solving within the field of expertise, based on information and data analysis (KU4). • Capable of conducting self-evaluation within the work group under one's responsibility, and capable of managing learning independently; and capable of documenting, storing, securing, and retrieving data to ensure validity and prevent plagiarism (KU8). • Capable of designing, developing, producing, utilizing, managing, dan mengevaluasi model analytical models and theories of spatial information based on science and technology (KK1)	Practicum: Building WebGIS using GeoServer	Practicum: Stage 5 GeoServer Implementation	Participatory	5	Practicum	Project	3	4,5,6	12-05-2025 07:00
16	Final Examination				15					19-05-2025 07:00

STUDENT LEARNING TIME (WORKLOAD)

LEARNING	ACTIVITIES		SYNCHRONOUS (Face-to-Face / Virtual Meeting)	ASYNCHRONOUS (Structured / Independent)	STUDENT LEARNING PREPARATION	TOTAL STUDENT LEARNING AND INSTRUCTION TIME
	Lectures/Responses/Tutorials		14 x 180 minutes = 2520 minutes	14 x 60 menit = 840 minutes	16 x 30 menit = 480 minutes	3840 menit (64.0 hours)
	Project-based learning		4 x 180 menit = 720 minutes	4 x 60 menit = 240 minutes	4 x 30 menit = 120 minutes	1080 menit (18.0 hours)
	Discussion (case-based learning)		8 x 60 menit = 480 minutes	8 x 60 menit = 480 minutes	8 x 30 menit = 240 minutes	1200 menit (20.0 hours)
	TOTAL					6120 menit (102.0 hours)
ASSESSMENT		Continuous Assessment				
		Participation During Learning	14 x 60 menit = 840 minutes	14 x 30 menit = 420 minutes	-x-	1260 menit (21.0 hours)
		Project Completion	4 x 30 menit = 120 minutes	4 x 30 menit = 120 minutes	-x-	240 menit (4.0 hours)
		Assignments	8 x 30 menit = 240 minutes	-x-	-x-	240 menit (4.0 hours)
		Quizzes	-x-	-x-	-x-	0 menit (0.0 hours)
		Formative				120 menit (2.0 hours)
		Summative				120 menit (2.0 hours)
	TOTAL					1980 menit (33.0 hours)
TOTAL WORKLOAD						8100 Menit (135 Jam)
TOTAL IDEAL HOURS						135 Hours
CREDITS						3
CONFORMITY WITH THE NUMBER OF CREDITS						APPROPRIATE

CPMK ASSESSMENT CRITERIA

No	CPMK	CPL						TAXONOMY	Weight	CPMK ACHIEVEMENT CRITERIA
		CPL-1	CPL-2	CPL-3	CPL-4	CPL-5	CPL-6			
1	• KU1 Capable of applying logical, critical, systematic, and innovative thinking in the context of or implementing knowledge and geographical that dan technology that observes and applies humanistic values in accordance with the relevant field of expertise;							30	5	60% of all students obtain a minimum score of 70 (scale of 100)
2	• KU2 Capable of demonstrating independent, high-quality, and measurable performance; capable of examining the implications of or implementing knowledge and science and technology technology that memperhatikan observes and applies humanistic values based on scientific rules, procedures, and ethics in order to produce solutions, ideas, designs, or artistic critiques;							30	25	60% of all students obtain a minimum score of 70 (scale of 100)
3	• KU4 Capable of making well-informed decisions in in the context of developing problem-solving within the field of expertise, based on information and data analysis;							40	40	60% of all students obtain a minimum score of 70 (scale of 100)

COLLABORATIVE ASSIGNMENT DESIGN

ASSIGNMENT TITLE	WebGIS
LEARNING METHOD	Case Method
TIME	
ASSESSMENT WEIGHT	40
SUB-CPMK	• Contributing in the context of improvement of community, national, and civilizational quality of life dan based on based on Pancasila (S3). • • Collaborating and demonstrating social sensitivity and concern for society and the environment (S6). • Demonstrating a responsible attitude toward work within one's field of expertise independently (S9)

ASSIGNMENT DESCRIPTION
WebGIS Collaborative Assignment: Development of a Web-based Geographic Information System — Assignment Title: WebGIS Development for Land Use Monitoring and Analysis in a City/Regency Optional Objectives: Developing geospatial of open-source technology. Integrating data Programming to in the context of to solve and data land use analysis. Improving teamwork skills in spatial data processing, GIS server management, and web programming.
TASK COMPLETION STEPS
Group Task Allocation: 1. Spatial Data Team: ◦ Collecting dan and preparing data land use from open sources (e.g., OpenStreetMap implementing or BIG). Performing data preprocessing using QGIS or ArcGIS. 2. Database & GIS Server Team: ◦ Managing spatial databases using PostgreSQL/PostGIS. Configuring a GIS server (GeoServer/MapServer) to solve to data serve. 3. Frontend Development Team: ◦ Using or implementing OpenLayers to solve to build an interactive WebGIS interface. Adding features such as location search, data filtering, and layer display. 4. Backend & API Team: ◦ Developing the backend using Python (GeoDjango) implementing or Node.js. ◦ Creating an API to connect the database with the frontend.
DETAILS OF EXPECTED OUTPUTS

Expected Output:

- A web-based WebGIS application capable of displaying an interactive map.
- Technical documentation of data processing procedures, and or development, dan information results.
- Project presentation with a demonstration of the developed WebGIS.

INDICATORS, CRITERIA, AND ASSESSMENT WEIGHT

Assessment:

- **Completeness and quality of spatial data** (20%)
- **WebGIS functionality** (40%)
- **Team collaboration in development** (20%)
- **Project documentation and presentation** (20%)

? **Deadline:** [Determined by the lecturer]

? **Submission Method:** Link to the WebGIS application and project report in PDF.

? **Note:** Creativity and innovation in adding additional features will receive bonus points! ?

IMPLEMENTATION SCHEDULE

Note: The number of days in one semester is $16 \times 7 = 112$ days. The implementation schedule may be determined based on the day count

Activities	Implementation Time
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OTHERS

Bonus points apply from WebGIS innovations

REFERENCES

1. Didik Dwi Prasetyo, 2003. PHP and MySQL Collaboration for Building Interactive Web Databases. Elexmedia Komputindo, Jakarta
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