



# UNIVERSITAS PENDIDIKAN INDONESIA

## SEMESTER LEARNING PLAN (RPS)

### COURSE IDENTITY

| Course Name | Course Code | Credits | Workload | Course Group                             | Semester | Prerequisite Course | Date of Issue       |
|-------------|-------------|---------|----------|------------------------------------------|----------|---------------------|---------------------|
| CARTOGRAPHY | SA220       | 3       | 135      | Study Programme Skill Development (PKPS) | 1        | None                | 2025-08-31 12:58:24 |

| Prepared by Course Lecturer      | Reviewed by Study Programme QA Team | Approved by Head of Study Programme   |
|----------------------------------|-------------------------------------|---------------------------------------|
| Prof. Dr. H. Dede Sugandi, M.Si. | Shafira Himayah, S.Pd., M.Sc.       | Dr. Lili Somantri, S.Pd., S.S., M.Si. |

## COURSE DESCRIPTION AND GRADUATE LEARNING OUTCOMES (CPL)

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Course Description</b> | <p>The Cartography course focuses on the science and art of map-making. In this course, students study the fundamental principles of cartography, including the history and evolution of maps, as well as the various techniques and methods used to collect, analyse, and present geographical data. Cartography integrates scientific and aesthetic aspects in the visual representation of geographical information, thereby producing maps that are not only data-accurate but also comprehensible and informative. Furthermore, the Cartography course covers the use of modern technologies such as Geographic Information System (GIS) software and satellite image processing techniques. Students will learn about various types of map projections, effective map design, and the application of maps in diverse fields such as urban planning, natural resource management, and navigation. With the skills acquired from this course, students are able to produce maps that are useful for scientific research, decision-making, and the communication of geographical information to a wider audience.</p> |
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| Graduate Learning Outcomes (CPL) Assigned to This Course |                                                                                                                                                                                                                      |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                        | To be capable of mastering the theoretical concepts of geography, the application of geospatial technology to resolve geospheric problems, and the development of models and methods for geospheric problem-solving. |
| 2                                                        | To be capable of integrating learning and innovation competencies, mastery of technology and information, career development, and life skills in order to become a lifelong learner.                                 |
| 3                                                        | To be capable of designing, developing, producing, utilising, controlling, and evaluating models of analysis and spatial information theory based on science and technology.                                         |

| Course Learning Outcomes (CPMK) |                                                                                                                                                                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                               | S6: To collaborate and to possess social sensitivity and concern for society and the environment.                                                                                                                                                                           |
| 2                               | P4: To be capable of mastering the theoretical concepts of Remote Sensing, encompassing both active and passive remote sensing systems, the concepts of visual and digital image interpretation, and the application concepts of remote sensing for geospheric information. |
| 3                               | KU4: To be capable of making appropriate decisions in the context of problem-solving within the field of expertise, based on the results of information and data analysis.                                                                                                  |
| 4                               | KK3: To be capable of planning, interpreting, analysing, classifying, extracting, validating, and visualising data and information derived from science and technology-based remote sensing.                                                                                |

| Sub-CPMK |          |                                                                                                                                                                 |
|----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | CPMK - 2 | To understand the definition of cartography, the foundational concepts of cartography, its history, and the role of maps in mapping and geographical knowledge. |
| 2        | CPMK - 2 | To understand and explain map scale and various map projections.                                                                                                |
| 3        | CPMK - 4 | To develop map-making skills.                                                                                                                                   |
| 4        | CPMK - 1 | To understand the production of base maps and thematic maps.                                                                                                    |
| 5        | CPMK - 1 | To understand generalisation techniques in map production from large scale to small scale.                                                                      |
| 6        | CPMK - 2 | To understand and explain the map production process and its cartographic elements, including scale, symbology, and spatial representation.                     |

|    |          |                                                                                                     |
|----|----------|-----------------------------------------------------------------------------------------------------|
| 7  | CPMK - 2 | To understand and explain the elements of a map, including the title, legend, and coordinate lines. |
| 8  | CPMK - 3 | To understand digital mapping, including the software used and its underlying concepts.             |
| 9  | CPMK - 3 | To understand and apply cartographic ethics in map production.                                      |
| 10 | CPMK - 4 | To understand and perform map interpretation.                                                       |

| Course Materials |                                                                        |
|------------------|------------------------------------------------------------------------|
| 1                | Fundamental concepts of cartography                                    |
| 2                | Map scale                                                              |
| 3                | Base maps and cartographic elements                                    |
| 4                | Map elements                                                           |
| 5                | Map projections                                                        |
| 6                | Fundamentals of map reading                                            |
| 7                | Generalisation                                                         |
| 8                | Land use map                                                           |
| 9                | Slope map                                                              |
| 10               | Land unit map                                                          |
| 11               | Digital map                                                            |
| 12               | Lettering, placement of geographical object names, and map composition |

|                                                                |                                                      |
|----------------------------------------------------------------|------------------------------------------------------|
| <b>Demonstrable Learning Outcomes at the End of the Course</b> | Land use map, slope map, land unit map, digital map. |
|----------------------------------------------------------------|------------------------------------------------------|

|                          |             |
|--------------------------|-------------|
| <b>Learning Strategy</b> | Case Method |
|--------------------------|-------------|

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Learning Steps</b> | <p>The Cartography course is delivered through face-to-face instruction comprising 7 theory sessions, 7 practical sessions, 1 mid-semester examination, and 1 final semester examination. The course materials encompass the foundational concepts of cartography, map scale and projection, base maps and framework maps, map symbols, lettering, placement of geographical object names, map composition, map generalisation, and fundamentals of map reading. In addition to the delivery of course materials, classroom activities are characterised by proactive discussion and question-and-answer exchanges between students and the lecturer. Students are encouraged to seek additional reference sources to broaden their knowledge of cartography. Practical sessions are designed to enhance students' technical proficiency in producing maps that conform to cartographic standards, both manually and digitally.</p> |
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| References |
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|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Birch, T.N. (1964). Map Topographical and Statistical. Oxford at the Clarendon Press, Folkestone.                                                          |
| 2  | Dede Sugandi. (1991). Interpretasi Peta Topografi dan Foto Udara. Jurusan Pendidikan Geografi FPIPS IKIP Bandung.                                          |
| 3  | Erwin Raisz. (1948). General Cartography. McGraw-Hill Book Company Inc., New York.                                                                         |
| 4  | Suwarli. (1987). Telaah Peta. Jurusan Pendidikan Geografi FPIPS IKIP Bandung.                                                                              |
| 5  | Lukman T. dan Ridawan. (1977). Peta Tematik. Dept. Geodesi Fak. Teknik dan Perencanaan ITB, Bandung.                                                       |
| 6  | Targumil. (1983). Ilmu Medan. Inti Ilmu Medan, Jawatan Topografi TNI-AD, Jakarta.                                                                          |
| 7  | Robinson, Thomas dan Randall. 1986. Elements of Cartography. New York: John Wiley and Sons.                                                                |
| 8  | Suryantoro, Agus. Kartografi Dasar Handout. 2011. Geo FIS UM.                                                                                              |
| 9  | Suryantoro, Agus. Pengantar Kartografi. 2010. Vian Press, Yogyakarta.                                                                                      |
| 10 | Handoyo, S. 2009. Kaidah Kartografis; Sebuah Kontemplasi Profesi. Jakarta. Forum Teknik Atlas Badan Informasi Geospasial.                                  |
| 11 | Kraak, M. dan Ormeling, F. 2007. Kartografi Visualisasi Data Geospasial. Gadjah Mada University Press, Yogyakarta.                                         |
| 12 | Handoyo, S. (2009). Kaidah Kartografis; Sebuah Kontemplasi Profesi. Jakarta. Forum Teknik Atlas Badan Informasi Geospasial.                                |
| 13 | Mohan, A. L. M. (2013). Spatial Thinking About Maps: Development of Concepts and Skills Across the Early Years. In National Geographic Education Programs. |

## LEARNING PLAN

| Week | Sub-CPMK                                                                                                                             | Achievement Indicators                                                                                                               | Course Materials                                                       | Assessment Form | Weight (%) | Synchronous                                                        | Asynchronous                                                                                                                                               | Duration | Ref. No. | Access Time      |
|------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------|------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|
| 1    | To understand the definition of cartography, foundational concepts, history, and role of maps in mapping and geographical knowledge. | To understand the definition of cartography, foundational concepts, history, and role of maps in mapping and geographical knowledge. | Fundamental concepts of cartography                                    | Observation     | 2          | Face-to-face; Q&A; discussion on fundamental cartography concepts. | Students are directed to complete evaluations and search for reference sources on fundamental cartography concepts.                                        | 3 hours  | 3,8,9    | 01-09-2025 07:00 |
| 2    | To understand and explain map scale and various map projections.                                                                     | To be able to explain map scale, various map projections, and to construct map projections.                                          | Map scale                                                              | Portfolio       | 3          | Face-to-face; discussion; Q&A.                                     | Students are directed to calculate scale, search for references on map projections, and are assigned to produce a map projection.                          | 3 hours  | 3,4,8,9  | 08-09-2025 07:00 |
| 3    | To understand and explain the map production process and cartographic elements.                                                      | To understand the process of producing base maps and framework maps, and their cartographic elements.                                | Base maps and cartographic elements                                    | Observation     | 3          | Face-to-face; discussion; Q&A.                                     | Students are directed to search for reference sources on base maps, framework maps, and cartographic elements.                                             | 3 hours  | 1,3,8    | 15-09-2025 07:00 |
| 4    | To understand and explain map elements including title, legend, and coordinate lines.                                                | To understand the elements of a map, namely the title, legend, coordinates, and symbology.                                           | Map elements                                                           | Portfolio       | 3          | Face-to-face; discussion; Q&A.                                     | Students are directed to search for references on map elements and are assigned tasks on coordinates and their divisions, lines of longitude and latitude. | 3 hours  | 3,7,8    | 22-09-2025 07:00 |
| 5    | To understand and apply cartographic ethics.                                                                                         | To understand and apply cartographic ethics, including lettering, placement of geographical object names, and map composition.       | Lettering, placement of geographical object names, and map composition | Observation     | 3          | Face-to-face; discussion; Q&A.                                     | Students are directed to search for references on cartographic standards and map layout.                                                                   | 3 hours  | 7,9,10   | 29-09-2025 07:00 |
| 6    | To understand generalisation techniques.                                                                                             | To understand the concept and techniques                                                                                             | Generalisation                                                         | Observation     | 3          | Face-to-face; discussion; Q&A.                                     | Students are directed to search for references on                                                                                                          | 3 hours  | 4,10,11  | 06-10-2025 07:00 |

|          |                                                                 |                                                                                                                         |                                                       |                 |           |                                                      |                                                                                                                       |         |         |                  |
|----------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------|-----------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------|---------|------------------|
|          |                                                                 | of generalisation in maps.                                                                                              |                                                       |                 |           |                                                      | map generalisation techniques.                                                                                        |         |         |                  |
| 7        | To understand and perform map interpretation.                   | To understand map interpretation and interpretation keys, and to be able to explain the information presented on a map. | Fundamentals of map reading                           | Observation     | 3         | Face-to-face; discussion; Q&A.                       | Students are directed to search for references on interpretation keys for various objects on maps.                    | 3 hours | 2,4,12  | 13-10-2025 07:00 |
| <b>8</b> | <b>MID-SEMESTER EXAMINATION (UTS)</b>                           |                                                                                                                         |                                                       |                 | <b>10</b> |                                                      |                                                                                                                       |         |         | 20-10-2025 07:00 |
| 9        | To understand the production of base maps and thematic maps.    | To understand and be able to produce a land use map.                                                                    | Land use map                                          | Portfolio       | 7         | Face-to-face; assignment to produce a land use map.  | Continue the land use map production assignment.                                                                      | 3 hours | 2,10,11 | 27-10-2025 07:00 |
| 10       | To develop map-making skills.                                   | To be able to interpret and produce a slope map.                                                                        | Slope map                                             | Portfolio       | 7         | Face-to-face; assignment to produce a slope map.     | Continue the slope map production assignment.                                                                         | 3 hours | 2,6,11  | 03-11-2025 07:00 |
| 11       | To develop map-making skills.                                   | To understand the concept and method of producing a land unit map.                                                      | Land unit map                                         | Portfolio       | 7         | Face-to-face; assignment to produce a land unit map. | Students continue the land unit map production assignment.                                                            | 3 hours | 2,6,11  | 10-11-2025 07:00 |
| 12       | To understand digital mapping, software used, and its concepts. | To understand the concept of digital mapping and to be able to perform digital mapping using mapping software.          | Fundamental concepts of cartography (digital mapping) | Portfolio       | 7         | Face-to-face; map digitisation exercise.             | Students are directed to search for references on digital mapping software and continue the digital map assignment.   | 3 hours | 7,10,11 | 17-11-2025 07:00 |
| 13       | To develop map-making skills.                                   | To understand and be able to produce a digital map.                                                                     | Digital map                                           | Multiple Choice | 7         | Face-to-face; digital map production.                | Continue the digital map production.                                                                                  | 3 hours | 5,7,11  | 24-11-2025 07:00 |
| 14       | To understand and apply cartographic ethics.                    | To understand and apply cartographic ethics in map production.                                                          | Digital map                                           | Multiple Choice | 7         | Face-to-face; digital map production.                | Students are directed to search for reference sources on cartographic ethics and continue the digital map assignment. | 3 hours | 5,7,11  | 01-12-2025 07:00 |
| 15       | To develop map-making skills.                                   | To be able to produce a digital map in conformity                                                                       | Digital map                                           | Portfolio       | 8         | Face-to-face; digital map production.                | Students continue the digital map                                                                                     | 3 hours | 5,10,11 | 08-12-2025 07:00 |

|    |                                  |                              |  |  |    |  |                        |  |  |                  |
|----|----------------------------------|------------------------------|--|--|----|--|------------------------|--|--|------------------|
|    |                                  | with cartographic standards. |  |  |    |  | production assignment. |  |  |                  |
| 16 | FINAL SEMESTER EXAMINATION (UAS) |                              |  |  | 20 |  |                        |  |  | 15-12-2025 07:00 |

## STUDENT LEARNING WORKLOAD

| LEARNING ACTIVITIES                 | SYNCHRONOUS              | ASYNCHRONOUS          | STUDENT STUDY PREPARATION | TOTAL STUDENT LEARNING AND INSTRUCTION TIME |
|-------------------------------------|--------------------------|-----------------------|---------------------------|---------------------------------------------|
| Lecture/Tutorial/Guided Response    | 14 x 120 min = 1,680 min | 14 x 60 min = 840 min | 14 x 10 min = 140 min     | 2,660 minutes (44.3 hours)                  |
| Project-based Learning              | 7 x 120 min = 840 min    | 7 x 80 min = 560 min  | -                         | 1,400 minutes (23.3 hours)                  |
| Discussion (case-based learning)    | 14 x 60 min = 840 min    | 14 x 40 min = 560 min | 14 x 20 min = 280 min     | 1,680 minutes (28.0 hours)                  |
| <b>TOTAL</b>                        |                          |                       |                           | <b>5,740 minutes (95.7 hours)</b>           |
| <b>ASSESSMENT</b>                   |                          |                       |                           |                                             |
| Participation During Instruction    | 14 x 40 min = 560 min    | -                     | -                         | 560 minutes (9.3 hours)                     |
| Project Work                        | 7 x 120 min = 840 min    | 7 x 80 min = 560 min  | -                         | 1,400 minutes (23.3 hours)                  |
| Assignments                         | -                        | 2 x 70 min = 140 min  | -                         | 140 minutes (2.3 hours)                     |
| Quizzes                             | -                        | -                     | -                         | 0 minutes (0.0 hours)                       |
| Formative Assessment                |                          |                       |                           | 80 minutes (1.3 hours)                      |
| Summative Assessment                |                          |                       |                           | 180 minutes (3.0 hours)                     |
| <b>TOTAL</b>                        |                          |                       |                           | <b>2,360 minutes (39.3 hours)</b>           |
| <b>TOTAL WORKLOAD</b>               |                          |                       |                           | <b>8,100 minutes (135 hours)</b>            |
| <b>IDEAL NUMBER OF HOURS</b>        |                          |                       |                           | <b>135 Hours</b>                            |
| <b>CREDITS (SKS)</b>                |                          |                       |                           | <b>3</b>                                    |
| <b>CONFORMITY WITH CREDIT HOURS</b> |                          |                       |                           | <b>COMPLIANT</b>                            |

## CPMK ASSESSMENT CRITERIA

| No | CPMK                                                                                                                                                                                                                                    | CPL1 | CPL2 | CPL3 | Weight | CPMK Achievement Criteria                                               |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|--------|-------------------------------------------------------------------------|
| 1  | S6: To collaborate and to possess social sensitivity and concern for society and the environment.                                                                                                                                       | 2    |      |      | 10     | 70% of all students achieve a score of at least 70 (on a scale of 100). |
| 2  | P4: To be capable of mastering the theoretical concepts of Remote Sensing, encompassing active and passive remote sensing systems, visual and digital image interpretation, and remote sensing applications for geospheric information. |      | 2    |      | 11     | 80% of all students achieve a score of at least 80 (on a scale of 100). |
| 3  | KU4: To be capable of making appropriate decisions in the context of problem-solving within the field of expertise, based on the results of information and data analysis.                                                              |      |      | 4    | 17     | 80% of all students achieve a score of at least 80 (on a scale of 100). |
| 4  | KK3: To be capable of planning, interpreting, analysing, classifying, extracting, validating, and visualising data and information derived from science and technology-based remote sensing.                                            |      |      | 4    | 32     | 90% of all students achieve a score of at least 90 (on a scale of 100). |

## COLLABORATIVE TASK DESIGN

|                                                     |                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TASK TITLE</b>                                   | Producing a land use map; producing a slope map; producing a land unit map; producing a digital map.                                                                                                                                                                              |
| <b>LEARNING METHOD</b>                              | Case Method                                                                                                                                                                                                                                                                       |
| <b>TIMEFRAME</b>                                    |                                                                                                                                                                                                                                                                                   |
| <b>ASSESSMENT WEIGHT</b>                            | 50                                                                                                                                                                                                                                                                                |
| <b>SUB-CPMK</b>                                     | To develop map-making skills.                                                                                                                                                                                                                                                     |
| <b>TASK DESCRIPTION</b>                             | Students produce all manual and digital maps independently in accordance with the assigned themes. Manual maps are produced using a Rapidograph pen; digital maps are produced using ArcGIS software.                                                                             |
| <b>TASK IMPLEMENTATION STEPS</b>                    | MANUAL MAP 1. Preparing tools and materials. 2. Conducting interpretation and delineation. 3. Symbolology. 4. Map layout. DIGITAL MAP 1. Producing the digital map with reference to the previously generated manual map. 2. Digitisation process. 3. Symbolology. 4. Map layout. |
| <b>DETAILS OF REQUIRED OUTPUTS</b>                  | Manual maps (land use, slope, land unit) and a digital map.                                                                                                                                                                                                                       |
| <b>ASSESSMENT INDICATORS, CRITERIA, AND WEIGHTS</b> | Neatness and conformity of the maps produced in accordance with cartographic standards; individual assessment for each map; maximum score: 100.                                                                                                                                   |
| <b>IMPLEMENTATION SCHEDULE</b>                      | Note: The total number of days in one semester is $16 \times 7 = 112$ days.                                                                                                                                                                                                       |
| Producing a land use map                            | Day 56                                                                                                                                                                                                                                                                            |
| Producing a slope map                               | Day 63                                                                                                                                                                                                                                                                            |
| Producing a land unit map                           | Day 70                                                                                                                                                                                                                                                                            |
| Producing a digital map                             | Days 77, 84, 91, 98                                                                                                                                                                                                                                                               |
| <b>OTHER NOTES</b>                                  |                                                                                                                                                                                                                                                                                   |
| <b>REFERENCES</b>                                   | 1. Dede Sugandi, (1991). 2. Erwin Raisz, (1948). 3. Lukman T. dan Ridawan, (1977). 4. Targumil, (1983). 5. Robinson, Thomas dan Randall, 1986. 6. Handoyo, S. 2009. 7. Kraak, M. dan Ormeling, F. 2007.                                                                           |