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| | **INSTITUT TEKNOLOGI SEPULUH NOPEMBER**<br>**FACULTY OF CIVIL, PLANNING AND GEO ENGINEERING**<br>**DEPARTMENT OF GEOMATICS ENGINEERING**<br>**UNDERGRADUATE PROGRAM** | **Document Code** |

## SEMESTER LEARNING PLAN (SLP)

| COURSE NAME | CODE | COURSE GROUP | CREDITS (SKS) | | SEMESTER | Date of Preparation |
|---|---|---|---|---|---|---|
| Applied GIS | CM234998 | Geoinformatics | T=2 | P=1 | Elective Course | - |

| AUTHORIZATION | SLP Developer | Course Group Coordinator | Head of Study Program |
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| | Nurwatik, S.T., M.Sc. | Agung Budi Cahyono, S.T., M.Sc, DEA | Putra Maulida, ST, MT, Ph.D |

**Learning Outcomes (LO)**

| Expected Learning Outcomes (ELO) that Imposed in the Course | |
|---|---|
| ELO-3 | Able to manage self-learning, and develop a personal lifelong learner to compete at national and international levels, in order to make a real contribution to solving problems by implementing information and communication technology and paying attention to the principles of sustainability, and understanding technology-based entrepreneurship. |
| ELO-4 | Able to apply mathematics, science, and engineering in the fields of geodesy, surveying, hydrography, remote sensing, photogrammetry, geographic information systems, and cadastral to gain a thorough. understanding of the principles of engineering. |
| ELO-7 | Able to perform spatial data acquisition using modern measurement methods, geospatial data processing, using industry standard software, and making standard designs and analyzes in the fields of geodesy, surveying, hydrography, remote sensing, photogrammetry, and cadastral. |

| Course Learning Outcomes (CLO) | |
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| CLO-1 | Able to comprehend and apply the concepts of spatial databases in geographic information systems |
| CLO-2 | Able to identify the required parameters for GIS applications in various fields |
| CLO-3 | Able to analyze spatial and attribute data with advanced GIS methods |
| CLO-4 | Able to visualize various problems using Web-based GIS |

**Matrix ELO – CLO**

| CPMK | ELO-6 | ELO-8 |
|---|---|---|
| CLO-1 | v | |
| CLO-2 | v | |
| CLO-3 | v | v |
| CLO-4 | | v |

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| **Course Description** | This course examines the formation of spatial databases (vector and raster models), spatial analysis models and their applications, GIS for Health, Environmental Management, Facilities Management, Urban GIS, Market Analysis and Disaster Management, WEB GIS |
| **Course Materials** | 1. |
| **References** | **Main:** |
| | 1. |
| | **Additional :** |
| | 1. |
| **Lecturer** | 1. Nurwatik, S.T., M.Sc. |
| **Prerequisite** | |

| 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 | Concept and definition of spatial data in GIS | | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [1 x 50']<br>2. Discussion [1 x 50'] | | • | 10 |
| 2 | GIS Applications for various sectors | 1. | 1. Completeness of the material<br>2. Depth of explanation and | 1. Lecture [2 x 50']<br>2. Discussion [1 x 50']<br>3. Task [1 x 50'] | | | 10 |

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| | | | effectiveness of communication | | | | |
| **3-4** | Data Acquisition, Processing and Visualization Process using GIS methods | 1. | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion [2 x 50'] | | | 10 |
| **5-7** | Parameter data and GIS analysis for the environmental sector | 2. | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion [1 x 50']<br>3. Task [1 x 50'] | | | 20 |
| **8** | **Midterm Evaluation / Midterm Exam** | | | | | | **50** |
| **9-10** | Parameter data and GIS analysis for the urban sector | 1. | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion, Task [1 x 50']<br>3. Response [1 x 50'] | | | 5 |
| **11** | Parameter data and GIS analysis for the conservation, pollution monitoring, and ecology-based models | 1. | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion, Task [1 x 50']<br>3. Response/exercise [1 x 50'] | | | 5 |
| **12** | Parameter data and GIS analysis for the disaster management sector | | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion, Task [1 x 50']<br>3. Response/exercise [1 x 50'] | | | 10 |

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| **13** | Parameter data and GIS analysis for infrastructure planning | | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion, Task [1 x 50']<br>3. Response/exercise [1 x 50'] | | | 10 |
| **14** | Parameter data and GIS analysis for transportation and utility planning | | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion, Task [1 x 50']<br>3. Response/exercise [1 x 50'] | | | 10 |
| **15** | The use of web-based geographic information systems | | 1. Completeness of the material<br>2. Depth of explanation and effectiveness of communication | 1. Lecture [2 x 50']<br>2. Discussion, Task [1 x 50']<br>3. Response/exercise [1 x 50'] | | | 10 |
| **16** | **Final Semester Evaluation / Final Semester Examination** | | | | | | **100** |