



**USK**  
UNIVERSITAS  
SYIAH KUALA

**FACULTY OF AGRICULTURE**  
**DEPARTMENT OF SOIL SCIENCE**

**UNDERGRADUATE PROGRAM**

**MODULE HANDBOOK**

Module designation	Practicum of Applied Geographic Information System (SSOL6017)
Semester(s) in which the module is taught	7 <sup>th</sup> semester
Person responsible for the module	Muhammad Rusdi
Language	Indonesian, English
Relation to curriculum	Elective module for area of interest in Soil Science Department
Teaching methods	Practice (field practice/ lab practice)
Workload (incl. contact hours, self-study hours)	✓ 170 minutes practice per week (field/laboratory 50 minutes; structured learning 60 minutes; 60 minutes self study)
Credit points	1 SKS = 1.6 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> <li>✓ Students know and understand spatial basics as a tool and method for land data inventory. Able to carry out activities of downloading and acquiring earth observation satellite imagery, improving spatial data and other analysis for geoprocessing purposes.</li> <li>✓ Students able to explain the concept of spatial analysis and its application and actual application (cognitive 4, affective 4, psychomotor 4)</li> <li>✓ Students able to carry out various geoprocessing applications through different data and case studies with accuracy based on data topology (Cognitive 5, Affective 5, Psychomotor 5)</li> <li>✓ Students are proficient in conducting geoprocessing analysis and combining it with other spatial clients such as remote sensing and drones. Able to present analysis results through layout and data conversion (Cognitive 6, Affective 6, Psychomotor 6)</li> </ul>
Content	This course discusses advanced spatial analysis models and their applications.
Exams and assessment formats	Case method, team based project
Study and examination requirements	<ul style="list-style-type: none"> <li>✓ Case Method: 50%</li> <li>✓ Team based project: 50%</li> </ul>

Reading list	<ol style="list-style-type: none"> <li>1. Roosli. 2018. An Indonesian Study of Mixed Methods: An Example of Methodological Triangulation: Cambridge Scholars Publishing <a href="https://www.cambridgescholars.com/product/978-1-5275-1594-9">https://www.cambridgescholars.com/product/978-1-5275-1594-9</a>.</li> <li>2. Rahajo B dan M Ihsan. 2019. Tutorial ArcGIS Desktop, Geosiana Press</li> <li>3. Prahasta, E. 2019. Konsep-konsep dasar sistem informasi geografis, Penerbit ANDI</li> <li>4. ESRI. 2025. Understanding GIS: An ArcGIS Project Workbook. <a href="https://www.esri.com/en-us/esri-press/browse">https://www.esri.com/en-us/esri-press/browse</a></li> <li>5. Penuntun Praktikum Sistem Informasi Geografis. 2021. Lab Penginderaan Jauh dan Kartografi USK</li> <li>6. Kang-Tsung, Chang. 2016. Introduction to Geographic Information Systems. Edisi ke-8. Mc Graw-Hill Education. Singapore</li> <li>7. QGIS. 2025. Resources Books. <a href="https://qgis.org/resources/books/">https://qgis.org/resources/books/</a></li> <li>8. Clark CGA, 2025. Geospatial Research. <a href="https://www.clarku.edu/centers/geospatial-analytics/research/">https://www.clarku.edu/centers/geospatial-analytics/research/</a></li> <li>9. Precisely.2025. Resource center. <a href="https://www.precisely.com/resource-center/">https://www.precisely.com/resource-center/</a></li> <li>10. Gepplanning. 2025, Geoplanning: Journal of Geomatics and Planning. <a href="https://ejournal.undip.ac.id/index.php/geoplanning/index">https://ejournal.undip.ac.id/index.php/geoplanning/index</a></li> <li>11. ArcGISHelp,2025 ArcGIS Help Library. <a href="https://resources.arcgis.com/en/help/main/10.2/">https://resources.arcgis.com/en/help/main/10.2/</a></li> <li>12. Badan Informasi Geospasial. 2025, Geospatial untuk Negeri <a href="https://tanahair.indonesia.go.id/portal-web/">https://tanahair.indonesia.go.id/portal-web/</a>.</li> <li>13. Indonesia Geospasial. 2025 Sistem Informasi Geografi &amp; Penginderaan Jauh. <a href="https://www.indonesia-geospasial.com/">https://www.indonesia-geospasial.com/</a>.</li> </ol>
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