MODUL HANDBOOK

	UNIVERSITAS PADJADJARAN **FACULTY OF MATHEMATICS AND NATURAL SCIENCES BACHELOR OF BIOLOGY PROGRAMME**	**COURSE CODE** **D10D- 60203**
Module designation	Geographic Information Systems	
Semester(s) in which the module is taught	6	
Person(s) responsible for the module	Dr. Teguh Husodo, M.Si	
Medium of instruction	Indonesian	
Relation to curriculum	Elective course	
Teaching methods	Lectures, discussions, cooperative learning, inquiry learning, and project based learning	
Workload	Total workload : 5440 minutes = 90.67 hours Lectures, discussions, cooperative learning, and inquiry learning : 2 x 50 minutes x 16 weeks = 1600 minutes = 26.67 hours Exercises Self-study : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours	
Credit points	2,00 (3,62 ECTS)	
Required and recommended prerequisites for joining the module	General Ecology	
Module objectives/intended learning outcomes	1. Students are able to explain (C2) and discuss (A2) the concept of geographic information system and its application in various fields, at least 60% correct. 2. Students are able to describe (C2) and discuss (A2) how GIS works in each of its components, and the position of GIS in various fields, at least 60% correct. 3. Students are able to understand (C2) and build (P2) GIS data from various sources and manage (A4) the data ready for use in various GIS digital formats, at least 60% correct. 4. Students are able to apply (C3) and implement (P2) data acquisition in Geographic Information Systems, at least 60% correct. 5. Students are able to analyze (C4) and implement (P2) and build (A4) GIS data design into a geodatabase, at least 60% correct. 6. Students are able to apply (C3) and implement (P2) digitation and topology procedures to build (A4) geodatabase ready for presentation and analysis, at least 60% correct. 7. Students are able to apply (C3) and implement (P2) GIS presentation and visualization in digital thematic maps, at least 60% correct. 8. Students are able to apply (C3) and implement (P2) the concept of spatial reference and geometry correction in GIS software, at least 60% correct. 9. Students are able to analyze (C4) and classify (A4) the quality of GIS data, at least 60% correct. 10. Students are able to operate (C3) and implement (P2) the basics of spatial analysis and formulate (A4) GIS data to be able to analyze (C4) and classify (A4) the quality of GIS data.	
Contents	1. Kontrak Perkuliahan dan Pendahuluan Pengertian SIG, sejarah dan perkembangan SIG dan representasi data informasi dan informasi geografis dan contoh aplikasi SIG 2. Subsistem dan Komponen SIG, kemampuan dan kedudukan SIG, Cara kerja SIG 3. Macam-macam Data dan Format Data SIG 4. Perolehan Data SIG : Data Spasial, Data atribut, Data spasial dengan data atribut 5. Geodatabase dan SIG: Teknik Perancangan dan Skema Geodatabase dan SIG Implementasi Geodatabase dalam SIG 6. Digitasi dan Topologi data SIG 7. Penyajian dan visualisasi dalam SIG 8. Referensi Spasial dan Koreksi Geometri dalam SIG	

	9. Dasar-dasar Analisis Spasial, fungsi dan implementasinya
Examination forms	Quiz, midterm exam, assignment, and final exam
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)
Reading lists	1. Allen, David. 2009. 'GIS Tutorial (Spatial Analysis Workbook)'. California. Esri Press 2. Indarto dan Arif Faisol. 2012. 'Konsep dasar Analisis Spasial'Penerbit ANDI Yogyakarta 3. Konecny, Gottfried. 2003. 'Geoinformation Remote sensing, photogrammetry and geographic information systems'. London and New York : Taylor & Francis 4. Prahasta, Eddy. 2009. 'Sistem Informasi Geografis (Konsep-konsep dasar perspektif geodesi dan geomatika)'. Bandung : Informatika 5. Aronoff, Stan, 1989. Geographic Information System: A Management Perspective. WDL Publications, Ottawa, Canada 6. Burrough, PA & McDonnel, RA, 1998. Principles of Geographical Information System. Oxford University Press Inc, New York 7. Huisman, Otto., De By, Rolf., 2009. Principles of Geographic Information Systems. ITC. Netherlands 8. Slocum, T.A., Kessler, F,. 2009. Thematic Cartography and Geovisualization. Pearson Education 9. Bahan Internet 10. Kresse, W., & Danko, D. (2022). Springer Handbook of Geographic Information. Springer Cham. 11. Kumar, M., Singh, R. B., Pravesh, R., Singh, A., Majid, S. I., Tiwari, A. (2023). Geographic Information System in Urban Planning and Management.