



DEPARTMENT OF GEOMATICS ENGINEERING
UNDERGRADUATE PROGRAM IN GEOMATICS ENGINEERING
COURSE SYLLABUS

COURSE	Name	Geospatial Information Analysis
	Code	RM184626
	Credits	4 (four)
	Semester	VI (six)

COURSE DESCRIPTION

In this course students will learn one of the main purposes of science and technology in the field of spatial information as follows: understand the technology of extraterrestrial data acquisition, know the utilization of satellite images and spatial data in both vector and raster, analyze geospatial information comprehensively.

EXPECTED LEARNING OUTCOME

C	Able to identify, formulate, analyze and solve problems in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, and cadastral.
D	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
E	Able to apply information & communication technology and the latest technological developments in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, geographic information systems, and cadastral.

COURSE LEARNING OUTCOME

1	Method and design for spatial analysis
2	Pattern and cluster analysis (quadrat count, kernel density, nearest neighbor)
3	Line data analysis (line length, line density, line direction, line orientation)
4	Design for local, neighborhood, and regional analysis
5	Design for 3D terrain analysis
6	Geo-statistical model in 3D data analysis
7	Model builder design for regression analysis
8	Network analysis (routing, service area, closest facilities, O-D cost matrix)
9	Geospatial information analysis for the management of land use
10	Geospatial information analysis for the inventory of natural resource
11	Geospatial information analysis for the control of disaster areas
12	Geospatial information analysis for geospatial information in urban and regional planning
13	Geospatial information analysis for geospatial information in archeology

COURSE MATERIALS

1	
2	
3	
4	
5	

PREREQUISITE

Digital cartography (minimal score D)
 Remote sensing (minimal score D)
 Digital photogrammetry (minimal score D)
 Geographic information system (minimal score D)

REFERENCES

A. Main References

Mitchel, Andy. The Esri Guide to GIS Analysis(three volumes), Esri Press. 1999.

Volume 1: Geographic Patterns and Relationships, 2005.

1 Volume 2: Spatial Measurements and Statistics, 2012.

Volume 3: Modeling Suitability, Movement, and Interaction

2 de Smith, MJ, MF Goodchild and PALongley, 2006-2011. Geospatial Analysis: A Comprehensive Guide to Principles, Techniques and Software Tools, 3rdEdition. www.spatialanalysisonline.com.

3 O'Sullivan, D. and D. Unwin. 2003. Geographic Information Analysis. John Wiley & Sons.

4 Muljo Sukojo, B. 2017. Pengantar Informasi Geospasial, Departemen Teknik Geomatika FTSLK ITS Surabaya

B. Additional References

1 Mitchell, Andy. The ESRI Guide to GIS Analysis, Volume 2. ESRI Press, 2005. ISBN: 978-1-58948-116-9.
www.esri.com.

2 Bivand Roger S., Pebesma, Edzer J., and Gmez-Rubio, Virgilio. 2008. Applied Spatial Data Analysis with R, Springer.