



DEPARTMENT OF GEOMATICS ENGINEERING
UNDERGRADUATE PROGRAM IN GEOMATICS ENGINEERING
COURSE SYLLABUS

COURSE	Name	Spatial Database System
	Code	RM184308
	Credits	3 (three)
	Semester	III (three)

COURSE DESCRIPTION
 Spatial database system course will discuss the concept of spatial database and its applications related to geomatics engineering. The practical training will give students experiences to create spatial database using one of spatial database management system (SDBMS) software (e.g. PostgreSQL + PostGIS, etc) and to visualize SDBMS using GIS software (e.g. Open Jump, QGIS, ArcGIS, AutoCAD, etc).

EXPECTED LEARNING OUTCOME

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 sensing, photogrammetry, and cadastral.
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	Able to use the concept and principle of database in order to identify the problems related to geomatics
2	Able to design and create spatial database system and analyze the data in term of general problem solutions related to geospatial information
3	Able to visualize spatial database using one of SIG tools (e.g. Open Jump, QGIS, ArcGIS, AutoCAD, etc.)
4	Able to arrange a report and present the result of spatial database design both orally and writing

COURSE MATERIALS

1	Concept of spatial database
2	Architecture and rules of spatial database
3	Basic concept of table
4	Spatial database design
5	Relational algebra in tables
6	Languages used in rational spatial databases
7	Design spatial database system using one of SMBDS software and present its data in GIS tools (e.g. Open Jump, QGIS, ArcGIS, AutoCAD, etc.)

PREREQUISITE

REFERENCES

A.	Main References
1	Waljiyanto, 2009, Sistem Basis Data, Graha Ilmu, Yogyakarta
2	Noname, 2006, Menjadi Seorang Programmer Komputer, Andi dan Wahana Komputer, Yogyakarta
3	Fathansyah, 2007, Basis Data, CV Informatika, Bandung
4	Sutanta, Edhy, 2004, Sistem Basis Data, Graha Ilmu, Yogyakarta
5	Prahasta, Eddy, 2012, Tutorial PostgreSQL, PostGIS dan PgRouting, Informatika, Bandung
B.	Additional References
1	https://www.enterprisedb.com/downloads/postgres-postgresql-downloads#windows
2	https://www.tutorialspoint.com/sql/sql-operators.htm
3	http://postgis.net/windows_downloads/
4	https://www.w3schools.com/
5	https://www.e-education.psu.edu/spatialdb/11.html
6	http://revenant.ca/www/postgis/workshop/