



DEPARTMENT OF GEOMATICS ENGINEERING
UNDERGRADUATE PROGRAM IN GEOMATICS ENGINEERING
COURSE SYLLABUS

COURSE	Name	Global Navigation Satellite System Survey
	Code	RM184517
	Credits	3 (three)
	Semester	5 (five)

COURSE DESCRIPTION

This course aims to provide the concepts, signal propagation, distance measurements using pseudorange-phases, orbit systems, errors, biases and measurement methods of the Global Satellite Navigation System and their use in the field of geomatics and teaches students how to process them using both commercial and scientific software.

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,
F	Able to compile scientific reports and provide solutions based on leadership, creativity and communication skills as well as being responsible for the work done.
G	Able to plan, perform and evaluate the process of surveying and mapping activities using the latest technology in the fields of geodesy, surveying, hydrographic, remote sensing, photogrammetry, and cadastral.

COURSE LEARNING OUTCOME

1	Able to understand the basic concepts of GNSS.
2	Able to understand the propagation of signals in the ionosphere and troposphere as well as the biases and errors of propagation.
3	Able to understand the procedures, have knowledge and experience in measuring and calculating distance using either pseudorange or using phase.
4	Able to explain errors and biases in 3 GNSS segments along with how to eliminate these errors.
5	Able to perform measurements using several methods on GNSS survey.
6	Able to perform data processing using scientific and commercial software.

COURSE MATERIALS

1	GNSS concept and positioning technology.
2	Propagation of GNSS signals and distance measurements using GNSS signals using phase and code signals.
3	Different types of GNSS data.
4	Types of bias and errors in all three segments of the GNSS technology.
5	Measurement method using GNSS technology.
6	Procedures for preparation of the GNSS survey.
7	GNSS data processing techniques using commercial and scientific software.
8	Procedure for GNSS survey in the field.
9	The concept of GNSS survey other applications.

PREREQUISITE

Satellite Geodesy

REFERENCES

A.	Main References
1	Abidin, H.Z., 2005. Geodesi Satelit
2	Abdiin, H.Z., 2005. Survei Satelit
3	
4	
5	
B.	Additional References
1	Wolf, 2010. Elementary Surveying
2	
3	
4	