



**DEPARTMENT OF GEOMATICS ENGINEERING**  
**UNDERGRADUATE PROGRAM IN GEOMATICS ENGINEERING**  
**COURSE SYLLABUS**

<b>COURSE</b>	Name	Geoid Modeling
	Code	RM184938
	Credits	2 (two)
	Semester	Elective Course

**COURSE DESCRIPTION**

This course studies the modeling of the shape and size of the Earth (Geoid) using gravity data with various methods.

**EXPECTED LEARNING OUTCOME**

A	Able to apply mathematics, science, and engineering in the fields of geodesy, surveying, hydrography, remote sensing, photogrammetry, geographic information systems, and cadastral to gain a thorough understanding of the principles of engineering
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

**COURSE LEARNING OUTCOME**

1	Able to explain the basic concepts of various geoid modeling methods
2	Able to create gravimetric geoid models using various methods from gravity data obtained from measurements
3	Able to perform analysis and validation of the resulting geoid model

**COURSE MATERIALS**

1	The concept of gravity
2	Source of gravity data
3	Dedicated gravity satellite mission
4	Global Geoid Model
5	Gravimetric geoid
6	Methods of geoid modeling
7	Validation of geoid model

**PREREQUISITE**

Physical Geodesy

**REFERENCES**

A.	Main References
1	Heiskanen, W.A. and H. Moritz. 1967. Physical Geodesy. Freeman, San Francisco.
2	Vanicek, P. and E.J. Krakiwsky. 1986. Geodesy: the Concepts. 2nd ed. Amsterdam: Elsevier
3	Torge, W. 1989. Gravimetry. de Gruyter, Berlin.
4	Chuji Tsuboi. 1979. Gravity, Allen & Unwin, London.
B.	Additional References
1	E-learning Geoid Modelling (share.its.ac.id)
2	Related journals, such as:
	- Journal of Geodesy
	- Geophysical Journal International
	- Geophysical Research Letters
	- Journal of Geodynamics
	- dll