	INSTITUT TEKNOLOGI SEPULUH NOPEMBER FACULTY OF CIVIL PLANNING AND GEO ENGINEERING GEOPHYSICAL ENGINEERING DEPARTMENT UNDERGRADUATE PROGRAM (S1)	
Course	**Course Name**	**Structural Geology**
	Course Code	**CF234309**
	Credit (SKS)	**3 (Three)**
	Semester	**3 (Three)**

COURSE DESCRIPTION

This course explains rock deformation, deformed structures in rocks (igneous rock, sedimentary rock, and metamorphic rock which includes joints, faults, foliation folds, rock cleavage, etc.), the origin of the style of structure formation (plate tectonic theory), presentation structures on geological maps and cross-sections, contour structures, unconformities. A field trip was held to introduce geological structures in the field, how to measure and analyze them. The course applies the case learning method.

PROGRAM LEARNING OUTCOMES (PLO)

PLO-4	Able to explain the principles of mathematics, natural science, geology, geospatial, instrumentation, information technology, engineering principles and design into geophysical engineering procedures, processes, systems or methodologies.

COURSE LEARNING OUTCOMES (CLO)

CLO-1	Able to explain the concept of geological structure formation and its depiction on stereographic projections
CLO-2	Able to apply and analyze the depiction of geological structures on geological maps

SUB COURSE LEARNING OUTCOMES (SUB CLO)

Sub CLO-1	[C2,A3] Able to explain the concept of deformation and rock rheology
Sub CLO-2	[C2,A3] Able to explain the concept of geological structure lines and their depiction on a stereographic plane
Sub CLO-3	[C2,A3] Able to apply depiction of geological structures on topographic maps and geological maps
Sub CLO-4	[C2,A3] Able to apply geological structures to subsurface data

STUDY MATERIALS

- Deformation process
- Stress vs strain and brittle vs ductile
- Line structure and strike dip
- Sterographic projection
- Sturdy structure
- Fault structure
- focal mechanism
- Active fault
- Structure of folds and unconformities
- V topographical and legal maps
- Depiction of geological structures on a map
- Simple geological profile
- Structural geomorphology
- Identification of subsurface geological structures

PRECONDITION

Petrology and Mapping

REFERENCES

1. Groshong, R. H. Jr., 2008, 3-D Structural Geology, 2nd Edition. Springer-Verlag, Heidelberg, 400p
2. Lisle, R.J. dan Leyshon, P.R., 2004, Stereographic Projection Techniques, 2nd Edition, Cambridge University Press, 112 p.
3. Price, N.J. & Cosgrove J.W., 1990, Analysis of Geological Structures, Cambridge University Press, New York.
4. Ragan, D.M., 2009, Structural Geology, An Introduction to Geometrical Technique, 4th Edition, Cambridge University Press, 602 p.
5. Ramsay, J.G., & Huber, M.I., 1987, The Techniques of Modern Structural Geology, volume 1 dan 2, Elsevier Academic Press.
6. Tomecek, S.M., 2009, Plate Tectonics, Chelsea House Publishers, New York, 102 p.
7. Journals and publications