



	INSTITUT TEKNOLOGI SEPULUH NOPEMBER FACULTY OF CIVIL PLANNING AND GEO ENGINEERING GEOPHYSICAL ENGINEERING DEPARTMENT UNDERGRADUATE PROGRAM (S1)	
Course	Course Name	Geodynamics
	Course Code	CF234308
	Credit (SKS)	2 (Two)
	Semester	3 (Three)
COURSE DESCRIPTION		
This course explains, among other things: the basics of depositional basin formation related to the environment and the movement of tectonic plates, the rheology of the earth's crust and rocks and changes in their character to various forces affecting them, the mechanism of basin formation due to stretching, flexuring, and its association with strike-slip deformation in the lithosphere, the classification and dynamics of basin filling and the stratigraphic sequence that may have formed. Interpretation and discussion of ectonostratigraphic evolution is based on surface and subsurface data for selected areas representing forearc, volcanic arc and backarc basins; potential geological resources as an implementation of understanding tectonostratigraphic evolution. 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 the development of tectonic theory and basin formation	
CLO-2	Able to apply and analyze Indonesian geodynamics	
SUB COURSE LEARNING OUTCOMES (SUB CLO)		
Sub CLO-1	[C2,A3] Be able to explain the concept of the development of tectonic theory	
Sub CLO-2	[C2,A3] Able to explain the concept of basin studies	
Sub CLO-3	[C3,A3] Able to apply the concepts of tectonic theory and basin studies to Indonesian geodynamics	
Sub CLO-4	[C3,A3] Able to apply geodynamic concepts to the analysis of the existence of resources and geological disasters	
STUDY MATERIALS		
<ul style="list-style-type: none">• Development of tectonic theory: Geosynclines and Undations• Development of tectonic theory: Plate tectonics, terrane tectonics and mantle plume• Basin formation• Basin filling• Basin evolution• Geodynamics of Java Island• Geodynamics of Sumatra• Gedynamics of Kalimantan• Geodynamics of Sunda Land• Geodynamics of Sulawesi• Geodynamics of Nusa Tenggara• Geodynamics of Papua• Eastern Indonesia Geodynamics• The relationship of geodynamics to geological resources and disasters		

**PRECONDITION**

Structural Geology

REFERENCES

1. Allen, P.A, and J.R. Allen (2005) Basin Analysis: Principles and Applications, 2nd ed. Blacwell Publishing, Malden, 549 hal.
2. Einsele, G. (2000) Sedimentary Basins: Evolution, Facies, and Sediment Budget, 2nd ed. Springer Verlag, Berlin, 792 hal.
3. Mike R. Leeder, M.R. (2011) Sedimentology and Sedimentary Basins: From Turbulence to Tectonics, 2nd ed., Wiley-Blackwell, 784 p.
4. Darman, H. and S.F. Hasan. (eds.) (2000) An outline of the geology of Indonesia. Ikatan Ahli Geologi Indonesia. 192 p.
5. Barber, A. J., M. J. Crow, and J. S. Milsom, eds. (2005) Sumatra: geology, resources and tectonic evolution. Geological Society London Memoir 31., 300 p.
6. Hall, R., and D. J. Blundell, eds. (1996) Tectonic evolution of SE Asia. Geological Society of London Special Publication 106., 566 p.