	INSTITUT TEKNOLOGI SEPULUH NOPEMBER FACULTY OF CIVIL PLANNING AND GEO ENGINEERING GEOPHYSICAL ENGINEERING DEPARTMENT UNDERGRADUATE PROGRAM (S1)	
Course	**Course Name**	**Introduction to Earth Science**
	Course Code	**CF234103**
	Credit (SKS)	**2 (Two)**
	Semester	**1 (One)**

COURSE DESCRIPTION

This course is an introduction to the understanding and utilization of geophysical techniques as an integrated exploration method of the subsurface conditions of the earth. By utilizing a logical methodology (physics, mathematics, geology), by utilizing computational techniques, information techniques and instrumentation. Furthermore, the description of the subsurface conditions is utilized according to the purpose of exploration.

PROGRAM LEARNING OUTCOMES (PLO)	
PLO-4	Able to explain the principles of mathematics, natural science, geology, information technology and engineering principles into geophysical engineering procedures, processes, systems or methodologies
COURSE LEARNING OUTCOMES (CLO)	
CLO-1	[C4,P3,A3] Students are able to recognize the physical characteristics of geological phenomena on the earth's surface through a simple geophysical methodology to obtain an overview of subsurface models and the dynamics of the earth's crust. By building and utilizing a simple model, students can understand its benefits in accordance with the purpose of exploration.
SUB COURSE LEARNING OUTCOMES (SUB CLO)	
Sub CLO-1	[C3,P3,A3] Be able to explain overview of general geophysics in the earth sciences,the theory of the formation of the planet earth, the shape and size of the earth,
Sub CLO-2	[C3,P3,A3] Be able to explain Earth's interior and seismology, earthquakes, gravity, Earth's magnetism, heat flow in the Earth.
Sub CLO-3	[C3,P3,A3] Able to explain the basic concepts of geophysical exploration methods for earth case studies
Sub CLO-4	[C3, P3, A3] Able to review case studies of the implementation of geophysical exploration methods and their development.

STUDY MATERIALS

Introduction to earth models by using data on the earth's surface to explain the dynamics of the earth, from the earth's surface to below the earth's surface.

Using the physical characteristics of the earth (both rocks and soil) to recognize natural phenomena and group them. In this way, students know the boundaries of tectonic plates and their dynamics.

Through measuring these characteristics, students can build a simple model of the earth and are able to use it to recognize the benefits of this knowledge for the application and development of earth exploration technology, within the limits of knowledge and skills for the introductory level; for example: seismology, gravity, volcanology, rock physics, electricity in the fields of energy and the environment.

Simple applications of information technology that can be utilized are: google earth, google maps, GPS, compass.

PRECONDITION
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REFERENCES
1. John Milsom,Asger Eriksen, 2011, Field Geophysics - 304 pages, John Wiley & Sons - Science. 2. William Lowrie, 2007, Fundamentals of Geophysics, Cambridge University Press - Science. 3. Alan E. Mussett,M Aftab Khan, 2000,Looking into the Earth: An Introduction to Geological Geophysics,Cambridge University Press -Science