BACHELOR 'S PROGRAMME
2nd YEAR OF STUDY, 1st SEMESTER

COURSE TITLE	PHYSICS OF THE EARTH
COURSE CODE	
COURSE TYPE	full attendance
COURSE LEVEL	1st cycle (bachelor's degree)
YEAR OF STUDY, SEMESTER	2nd year of study, 1st semester
NUMBER OF ECTS CREDITS	4
NUMBER OF HOURS PER WEEK	3 (2 lecture hours + 1 seminar hours)
NAME OF LECTURE HOLDER	Assoc. Prof. PhD Cristian-Ioan Baban
NAME OF SEMINAR HOLDER	Assoc. Prof. PhD Cristian-Ioan Baban
PREREQUISITES	Advanced level of English

A — GENERAL AND COURSE-SPECIFIC COMPETENCES

General competences:

- → Effective use of information sources and communication resources and assisted professional training, both in Romanian and in a foreign language.
- → Elaboration, drafting and presentation in Romanian and/ or in a language of international circulation of a specialty work on a current topic in the field.

Course-specific competences:

- → Derivation of working formulas for calculations with physical quantities using appropriate principles and laws of Physics.
- → Description of physical systems, using specific theories and tools (experimental and theoretical models, algorithms, schemes, etc.)
- → Application of the principles and laws of Physics in solving theoretical or practical problems, under qualified assistance conditions.
- → Proper use of numerical methods and mathematical statistics in the analysis and processing of specific physical data
- → Elaboration of graphs and reports for explaining and interpreting physical results obtained by statistical methods.
- → Application of Physics knowledge both in given situations in related fields and in experiments, using standard laboratory equipment.
- → Explanation and interpretation of physical phenomena by formulating assumptions and operationalizing key concepts and proper use of laboratory equipment.
- → Critical assesment of the results obtained by employing a physical model, including the degree of uncertainty of the obtained experimental results.

B — LEARNING OUTCOMES

Upon completion of this course, students will be able to:

1. Use the notions of physics to explain phenomena that occur within the Earth.
2. Correlate these phenomena with the properties of materials under high temperature and pressure conditions
3. Communicate and work in a team to solve various practical situations

C — LECTURE CONTENT

Introduction
Geochronology
The Movements of the Earth;
Earth's gravitational field;
The internal structure of the Earth;
Earth's thermal state;
Earth's magnetic field;
The dynamics of the tectonic plates.
Seismology

D — RECOMMENDED READING FOR LECTURES

1. T. J. Ahrens, Global Earth Physics: a handbook of physical constants, American Geophysical Union, Washington DC, 1995
2. J. P. Poirier, Introduction to the Physics of the Earth's Interior, Cambridge University Press, 2000
3. N. Lupei Dinamica terestra, Editura: Albatros;1979

E — SEMINAR CONTENT

Geological eras
Determination of age of rocks by techniques based on radioactive disintegration
Analysis of variation of Earth's orbital parameters using Fourier analysis
Isostatic equilibrium

	Calculation of the pressure in the center of the Earth based on simple models of density Methods of determining the elements of terrestrial magnetism; Determining the coordinates of the north geographic pole Study of the thermal conductivity of some minerals in the composition of the earth's crust; Determining the thickness of the Earth's crust. Identifying Mohorovich discontinuity Determination of the elastic constants of some materials; Modeling of physical phenomena occurring in the Earth's crust.
F	RECOMMENDED READING FOR SEMINARS
	T. J. Ahrens, Global Earth Physics: a handbook of physical constants, American Geophysical Union, Washington DC, 1995
G	EDUCATION STYLE
LEARNING AND TEACHING METHODS	Interactive lecture, Computer application Problem solving, Experiment, Reports
ASSESSMENT METHODS	• Written exam • Weekly monitoring of the status of the proposed projects and themes
LANGUAGE OF INSTRUCTION	English