Level: bachelor

Course title: MINERALOGY WITH CRYSTAL CHEMISTRY

Status: elective

ECTS: 5

Requirements: none

Learning objectives

Obtaining knowledge on crystals and minerals, and development of criteria for evaluating modern ways of presenting their structure.

Learning outcomes

After successfully completing the course, the student is able to:
Identify and examine rocks, minerals and crystals; Plan crystallization processes under the laboratory conditions; Systematize and select samples of minerals, ores and rocks; Analyze and apply crystallographic models; Consider natural resources in terms of mineralogy and crystal chemistry; understand and critically assess modern methods of examining crystals and minerals.

Syllabus

Theoretical instruction:
Geometrical properties of matter, symmetry operations and measurements in crystallography and mineralogy; Crystallographic syngonies; Isomorphism and polymorphism; Systematic mineralogy: native elements, halogens, oxide, sulphide, sulphate, nitrate, phosphate, carbonate and silica minerals; Liquid crystals; the most important industrial minerals.

Practical instruction:
Laboratory method for obtaining crystals; Collection of minerals (working in the Natural History Museum); Methods of crystals and minerals analysis: microscopic, X-ray, optical, chemical and physico-chemical methods of analysis.

Weekly teaching load				Other:
Lectures: 2	Exercises: 2	Other forms of teaching:	Student research:	