

**Course:** Fundamentals of Earth Sciences II

**Lectures:** Basic soil science concepts. Soil in terms of nature, engineering and technology. Soil functions. Soil-forming factors. Soil formation processes. Three-phase soil system. Physical, chemical and physical-chemical properties of soils. Biological changes in soils. Polish soil classifications and their importance for the engineering survey of the area. Anthropogenic soil transformation - causes and effects of soil degradation. Basics of soil protection - soil purity in the light of regulations and standards, limit numbers, choice of the direction and goals of reclamation, methods of preventing environmental degradation. Principles of selection of degraded land reclamation methods. Principles and groups of techniques for detoxification of contaminated soils.

**Lab:** soil profile. Basic methods of field determination of soil material. Preparation of soil extracts. Determination of basic physical and chemical properties. Colorimetry in soil analysis. ICP in soil analysis. Soil maps. Assessment of the condition of soils based on the results of laboratory analyzes.

**Project:** reclamation project for a degraded area, including the characteristics of the area, soil condition assessment and a schedule of reclamation activities, work measurements and a shortened cost estimate.

**Responsible person:** prof. Andrzej Greinert, Jakub Kostecki, PhD Eng.

**More info:**

<https://webapps.uz.zgora.pl/syl/index.php?/course/showCourseDetails/1222278>