

## DEPARTMENT OF GEOLOGICAL ENGINEERING

### HISTORY

Department of Geological Engineering is one of the oldest departments of our university and was opened in 1975 under the name of Department of Geosciences at Faculty of Science, Selçuk University. In 1982, the Department of Geological Engineering was affiliated to the Faculty of Engineering-Architecture and in 1983, in addition to undergraduate education, it offered graduate education as the Department of Geosciences in the Institute of Natural Sciences. The Department of Geological Engineering was affiliated to Konya Technical University, Faculty of Engineering and Natural Sciences, which was established in 2018, and graduate education was affiliated to the Institute of Graduate Education. The Department of Geological Engineering has General Geology, Applied Geology, Mineralogy and Geochemistry, Mineralogy and Petrography disciplines.

The Department of General Geology is designed to provide students with a broad education in the basic sciences as well as theoretical and practical experience in their areas of specialization. The theoretical and practical training in many sub-disciplines such as structural geology, geological mapping, paleontology, sedimentology, earthquake, stratigraphy, paleoecology, stratigraphic paleontology is provided by expert academicians.

In the Applied Geology Department, both theoretical and practical training is provided by academicians specialized in water chemistry, hydrogeology, groundwater pollution and pollutants, geothermal energy, environmental hydrogeology, isotopic properties of waters, statistical applications in hydrogeology, geotechnical investigations, slope stability, rock and soil mechanics, tunnel and dam geology. In addition, Na, K, Ca, Mg, Cl, HCO<sub>3</sub>, CO<sub>3</sub> and SO<sub>4</sub> analyses of hydrogeochemical water are performed. There are 50 m, 100 m and 200 m level measuring devices for groundwater level measurements, portable electrical conductivity (EC), hydrogen ion concentration (pH) and temperature (°C) meters. In the soil/rock laboratory, there are point loading strength, hardness, water dispersion, triaxial pressure tests, core cutting, sieve analysis, crusher and grinder.

In Mineralogy Petrography, theoretical and applied research on minerals and rocks is carried out at the graduate level and the education traditionally covers the origin, formation and differentiation processes of rocks and minerals, as well as economic resources (industrial raw materials, metallic mineral deposits, fossil fuels, geothermal energy, etc.) and environmental research. Research is conducted mainly on mineral chemistry, crystallographic and physical properties, petrography, geochemistry, petrology and volcanology of igneous and metamorphic

rocks. In addition, advanced geochronological and geochemical analytical methods are applied at national and international level by the researchers.

In the Department of Mineral Deposits-Geochemistry, studies are carried out according to the criteria required for any natural resource to be produced as an end product with the technical and economic conditions of the day and to be evaluated as mineral deposits (metallic mineral deposits, industrial raw materials, fossil fuels, natural building materials, ornamental stones, waters and gas outlets). In the laboratories, bright section and grain preparations are made and examined on rock/gemliferous samples and sediment/depositional formations to determine the structure and texture properties, paragenesis and succession of the samples. In addition, ore chemistry, geothermometer and geobarometer and isotope studies are carried out in line with basic and applied geochemistry (Prospecting Geochemistry, Environmental Geochemistry, Medical Geochemistry). In line with all the data obtained, the ability to interpret the origin of possible mineralization is gained. Experience of learning, detecting and evaluating processes such as; regarding the economy of the mineral deposits, starting with the determination of reserve and grade, and the search for the deposit in accordance with the technological, economic, political and environmental criteria, the legal situation of the field to be resolved, the operation to be started, the solution of transportation, water and energy problems, the measures to be taken for the realization of legal sanctions, the calculating of personnel and depreciation expenses. In line with the knowledge and acquisitions obtained, certified geology engineers who have the capability of animating and solving three-dimensional problems about mineral deposits, project design, application, development, interpreting, and reporting the results obtained, are aware of contemporary geological engineering concepts and issues, have lifelong learning awareness and knowledge of social, economic, environmental, political, and legal content, fulfill the requirements, and interpret the results, are trained.

#### OUR MISSION

The Department of Geological Engineering aims to train graduate-level students who possess the following skills and qualities:

- a) Equipped with contemporary course programs and professional knowledge that can be developed according to the conditions and needs of the day,
- b) Having the ability to use their professional knowledge in problem solving, having a systematic approach and design skills in solving engineering problems, capable of synthesis and analysis,

- c) Gain awareness of the social, economic, political and legal responsibilities of their professional activities, respectful to professional and social ethical rules, and able to use their professional responsibility within these rules,
- d) Being able to communicate socially and culturally, having an open understanding of all kinds of development,
- e) Adopting success and honesty as a principle in fulfilling the tasks it undertakes and solving the problems it encounters,
- f) Having the ability to work in a multidisciplinary manner, who loves and protects his profession, and is in solidarity with other related professions,
- g) Innovative, entrepreneur, following the developments in the profession, using professional equipment,
- h) Able to compete nationally and internationally as a reliable person preferred in business life within the community,
- i) Recipient to all kinds of environmental issues, sensitive to health and safety issues,
- j) To to prepare individuals whose main goal is to serve their country, nation, and humanity, and to prepare individuals who can contribute to sustainable development by providing solutions to the geological problems of their country and region in a sensitive way by supporting public institutions, organizations, and industry.

#### OUR VISION

To train geoscience engineers who can produce solutions in their profession by providing theoretical and practical teaching services at international level in accordance with the needs of the country, researcher, and are qualified, respected and beneficial to humanity. In addition, it is to be an internationally recognized and respected department that conducts applicable scientific research in the solution of the geological problems of Turkey and Konya region.