



**SE-829-GS2**

**GEOHERMAL SCIENCE II**

**5 ECTS**

**Year of study:** First year MSc.

**Semester:** Spring.

**Level of course:** 5. Second cycle, intermediate.

**Type of course:** *Taught in the Iceland School of Energy.* Elective for all MSc programs in engineering.

**Prerequisites:** SE-829-GS1 Geothermal Science I.

**Schedule:** Taught during the 12-week teaching period. Schedule will be introduced in the learning management system Canvas at the beginning of the semester.

**Supervisor:** Juliet Newson.

**Lecturer:** Guðni Axelsson, Juliet Newson.

**Learning outcome:**

*Knowledge:* The student should be able to demonstrate knowledge in the following:

- Silica and carbonate solutions and scaling
- Isotopes in geothermal fluids
- Fluid inclusions
- Geochemical monitoring of geothermal power plants
- Geophysical methods in structural mapping
- Resistivity
- Seismic methods
- Well testing

*Skills:* The student can:

- Design a geochemical data collection programme
- Collect geochemical data
- Evaluate geochemical data
- Evaluate a geophysical survey design and survey results
- Design a welltest program, then perform data analysis and interpretation.

*Competence:* Understanding and applying basic principles of:

- Competent in all aspects of geothermal geochemistry project
- Evaluate the design, interpret and report on geophysical surveys
- Design, supervise, analyse and interpret welltest data.

**Content:**

This course builds on Geothermal Science I and teaches advanced geothermal geology and borehole logging, surface feature monitoring, advanced geochemistry; borehole geophysics and an introduction to the different types of geothermal well tests, when they are used and the information they yield. A field trip is part of the course if conditions permit.

**Reading material; Teaching and learning activities; Assessment methods:** Will be introduced in Learning Management System Canvas at the beginning of the semester.

**Language of instruction:** English.