



SE-828-GR2

GEOHERMAL RESERVOIR ENGINEERING

5 ECTS

Year of study: First year MSc.

Semester: Spring.

Level of course: 4.-5. Second cycle, introductory-intermediate.

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

Prerequisites: No prerequisites.

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, Egill Júlíusson, Juliet Newson.

Learning outcome:

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

- Basic theory of fluid and energy flow in geothermal reservoirs
- Utilization of geothermal systems
- The nature and response of systems to utilization
- Approaches to geothermal resource management and monitoring geothermal systems.
- Analytical and numerical modeling of geothermal systems

Skills: The student can:

- Apply scientific and engineering knowledge to build conceptual models of geothermal systems
- Apply analytic models to understand the performance of geothermal systems under utilization
- Design geothermal reservoir models for numerical simulation and perform computer simulations using reservoir simulation code.
- Design a monitoring system to extract key data from the system
- Interpret monitoring data for system management

Competence: Understanding and applying basic principles of:

- Reservoir monitoring
- Reservoir modeling
- Reservoir management

Content:

Introductory geothermal reservoir engineering, through lectures and several practical projects and assignments, with the aim of providing the student with basic knowledge on the different aspects of the discipline as well as some experience in tackling practical problems.

Reading material: Lecture notes, company reports and research results as recommended.

Teaching and learning activities: The course is based on lectures and projects. Further details will be introduced in the learning management system Canvas at the beginning of the semester.

Assessment methods: Will be introduced in Learning Management System Canvas at the beginning of the semester.

Language of instruction: English.