

# Introduction to Low Enthalpy Geothermal Exploration (G506)



## Tutor(s)

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## Overview

This course covers all aspects of low enthalpy geothermal exploration and production. It is intended as an introduction to the entire lifecycle of low enthalpy geothermal resources, covering aspects of geoscience and engineering.

## Duration and Logistics

**Classroom version:** A 3-day course comprising a mix of lectures, case studies and exercises. The manual will be provided in digital format and participants will be required to bring a laptop or tablet computer to follow the lectures and exercises.

**Virtual version:** Five 3.5-hour interactive online sessions presented over 5 days. A digital manual and exercise materials will be distributed to before the course. Some reading and exercises are to be completed by participants off-line.

## Level and Audience

**Intermediate.** The course is intended for all career stage industry professionals and early career researchers with a geoscience or geo-engineering background, including those with a familiarity in oil and gas production.

## Objectives

You will learn to:

1. Understand the applications and use of low enthalpy geothermal energy.
2. Recall the basic principles of heat generation within the upper crust.
3. Describe the key characteristics of geothermal resources and reservoirs.
4. Understand the production options for low enthalpy geothermal resources.
5. Appreciate project risks and uncertainties in developing geothermal resources.

## Course Content

### Course Details

This course will focus on describing low enthalpy geothermal resources and their potential role in decarbonizing energy systems.

## **Session 1: Role of geothermal in decarbonization**

- Overview of global low enthalpy geothermal projects
- The need to decarbonize heating and cooling

## **Session 2: Principles of low enthalpy geothermal resources**

- Heat flow in the upper crust
- Low enthalpy geothermal plays

## **Session 3: Geothermal resource characterization**

- Geological characterization of resources
- Production of low enthalpy resources

## **Session 4: Workflows and case studies - exploration to production**

- Geothermal exploration
- Geothermal production
- Case studies

## **Session 5: Technologies and integration**

- Technology and cost reduction in geothermal
- Integration of low enthalpy resources into energy system planning
- Uncertainties and challenges in developing geothermal resources