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COURSE BROCHURE

Geothermal Power and Direct Heat Fundamentals Training Course

10 – 14 January 2027
Muscat

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Registered in the United Kingdom and Saudi Arabia

Geothermal Power and Direct Heat Fundamentals Training Course

Ref: 3128_118804 **Date:** 10 – 14 January 2027 **Location:** Muscat **Fees:** 6500 GBP

Geothermal Power and Direct Heat Fundamentals is a 1-week training course for energy engineers and project developers who need to judge whether underground heat can supply electricity or heating at a given site, and it closes with each participant drafting a Geothermal Site Screening Brief. Interest in firm, low-carbon supply that runs day and night is turning attention to heat below the surface. Geothermal power and direct heat are taught by Jupiter Prime Training.

Why Geothermal Power and Direct Heat Matter Now

Three forces shape geothermal work today. Grid operators value supply that does not depend on sunshine or wind, and geothermal plants can run at steady output. Drilling methods refined in hydrocarbon fields are now being applied to hot rock and deep aquifers. Industrial and district heating users want heat sources that cut fuel burning. A developer who reads the reservoir, the well results and the plant options can raise finance on clear evidence; one who does not risks dry wells, falling output and stranded surface plant. The course rests on general resource classification and reporting practice.

Who Gains Most from Geothermal Power and Direct Heat

- Energy engineers who compare generation options for a new site or portfolio
- Project developers who prepare early-stage feasibility and investment cases
- Utility and industrial heat planners who look at district heating or process steam supply
- Drilling and reservoir specialists moving from hydrocarbon work into heat projects
- Technical advisers to lenders who review resource and plant assumptions

A developer team and its technical advisers gain most when they attend together.

Geothermal Power and Direct Heat Capabilities

Participants learn to link what lies underground to what surface plant can deliver.

- Classify geothermal systems by temperature, permeability and fluid type — developers choosing where to explore
- Interpret well test results and reservoir temperature data — engineers deciding whether to drill further
- Compare flash steam, dry steam and binary cycle plants for a given resource — owners selecting plant
- Specify direct heat uses such as district heating, greenhouses and industrial drying — heat customers
- Estimate capacity and output decline over plant life — investment committees
- Build a project risk register covering exploration, drilling, scaling and reinjection — lenders and insurers

Key Geothermal Power and Direct Heat Terms

- Hydrothermal reservoir — permeable hot rock holding water or steam that wells can tap for heat or power.
- Binary cycle plant — a power plant that passes geothermal fluid through a heat exchanger to boil a second working fluid.
- Flash steam — steam produced when pressurised hot water drops in pressure at the surface separator.
- Reinjection — returning cooled geothermal fluid to the reservoir to sustain pressure and dispose of brine.
- Productivity index — the flow a well delivers for each unit of pressure drawdown in the reservoir.
- Enhanced geothermal system — a reservoir made by stimulating hot, low-permeability rock to create flow paths.

Geothermal Power and Direct Heat Day by Day

Day 1: Heat Beneath the Surface

- Heat Flow, Gradients and Crustal Settings — Locating Promising Geothermal Areas
- Hydrothermal, Hot Dry Rock and Low-Enthalpy Systems — Matching Resource to Use
- Surface Manifestations and Geochemical Thermometers — Early Temperature Estimates
- Geophysical Surveys for Heat Exploration — Siting the First Wells
- Resource Classification and Reporting Categories — Communicating Confidence to Investors

Day 2: Wells and Reservoir Behaviour

- Geothermal Well Design and Casing Choices — Coping with Heat and Corrosion
- Well Testing, Productivity and Injectivity — Judging Each Well's Contribution
- Reservoir Pressure, Recharge and Reinjection Strategy — Sustaining Long-Term Output
- Scaling, Corrosion and Non-Condensable Gases — Choosing Fluid Treatment
- Stimulation of Low-Permeability Rock — Weighing Enhanced System Options

Day 3: Turning Heat into Electricity

- Dry Steam and Flash Plant Layouts — Fitting Plant to High-Temperature Fluids
- Binary Cycle Plants and Working Fluids — Using Moderate-Temperature Resources
- Gathering Systems, Separators and Condensers — Sizing Surface Equipment
- Cooling Options and Water Use — Siting Plants in Dry Areas
- Grid Connection and Steady Output Profile — Contracting Firm Supply

Day 4: Direct Heat and Project Risk

- District Heating Networks from Geothermal Wells — Serving Towns and Campuses
- Industrial Drying, Greenhouses and Process Steam — Selling Heat to Industry
- Combined Heat and Power from One Resource — Raising Overall Project Return
- Exploration and Drilling Risk Sharing — Structuring Insurance and Finance
- Output Decline Curves and Make-Up Wells — Planning Capacity Over Plant Life

Day 5: Practising the Geothermal Site Screening Brief

- Resource Evidence Summary for a Candidate Site — Applying Exploration Methods
- Well and Reservoir Assumptions Table — Applying Test Interpretation
- Power, Heat or Both Option Comparison — Applying Plant Selection Criteria
- Project Risk Register and Mitigation Choices — Applying Risk Sharing Options
- Geothermal Site Screening Brief — Recommending Whether to Drill Confirmation Wells

Applying Geothermal Power and Direct Heat After the Course

- Screen one candidate site from published heat flow and well data, rating its temperature, permeability and fluid chemistry evidence.
- Compare a binary cycle plant with a direct heat scheme for one moderate-temperature resource, setting out output, water use and customer demand.

Geothermal Power and Direct Heat Questions FAQ

What are geothermal power and direct heat and why do they matter now?

They are the use of heat stored underground to generate electricity or to supply heating directly. They matter now because buyers want firm low-carbon supply and new drilling methods widen where projects can work.

Which roles gain most from geothermal power and direct heat fundamentals?

Energy engineers and project developers gain most, followed by heat planners, drilling specialists entering heat projects and advisers to lenders.

How does geothermal power and direct heat differ from a course on choosing among renewable technologies?

It goes deep into one resource, from reservoir to plant and heat customer. A technology selection course compares many sources without this depth.

What do you bring back from geothermal power and direct heat fundamentals?

You bring back a screening record for one candidate site, with resource evidence, well assumptions, a power or heat option comparison and a risk register.

Geothermal Power and Direct Heat: The Way Forward

The Geothermal Site Screening Brief first informs the decision on whether to fund confirmation wells at a candidate site. Developers, technical advisers and finance teams use it to agree what the evidence shows and what remains uncertain. After its first use, revisit the reinjection and output decline assumptions once production data arrives.