

## Workshop "Vocational training in Europe"

# geo2spain

Training in the field of shallow geothermal energy  
for different users

Projektpartner:



Gefördert vom:



Kennzeichen: 01BE17021C

# Title of the project

---

**German:**

Entwicklung und modellhafte Implementierung  
von dualen Weiterbildungsdienstleistungen  
im Bereich der oberflächennahen Geothermie  
für technisch-handwerkliche Zielgruppen in Spanien

**English:**

Development and exemplary implementation  
of dual vocational training services  
in the field of shallow geothermal energy  
for technical-craftsmanship target groups in Spain

# Project team



## project manager:



GtV  
Service GmbH

Albrechtstraße 22  
10117 Berlin  
[www.geothermie.de](http://www.geothermie.de)  
contact: Gregor Dilger

## affiliated partners:



Am St. Niclas Schacht 13  
09599 Freiberg  
[www.geoenergie-konzept.de](http://www.geoenergie-konzept.de)  
contact: Rüdiger Grimm



Lennershofstraße 140  
44801 Bochum  
[www.geothermie-zentrum.de](http://www.geothermie-zentrum.de)  
contact: Dr. Claus Heske



Buscheyplatz 13  
44801 Bochum  
[www.ifi-ge.de](http://www.ifi-ge.de)  
contact: Dr. Thomas Kley

# Motivation and project objectives

---

- expansion of renewable energies
- dissemination of shallow geothermal energy
- increasing public awareness
- increasing acceptance among the public
- raising educational standards for BHE
- European standardization CEN TC 451 WG 2 "BHE"
- strengthening the market for ground source heat pumps
- strengthening sales markets for German products
- network building
- ...

# Training concept and time schedule

---

## **training concept:**

- training courses in three different levels
- for three different target groups
- with different previous knowledge and
- previous practical experience
- training courses with theoretical and practical parts
- theoretical part divided into individual e-learning and classroom courses
- practical part with exercises and practical applications

## **time schedule:**

- start of trainings: 2020
- project duration: February 2022
- one training per level in 2020
- one training per level in 2021

**job specification:**

- drilling assistant  
for the construction of Borehole Heat Exchangers

**target group:**

- low-qualified people
- unemployed

**pre-qualification skills:**

- European Qualifications Framework EQF 1-2
- working or learning under guidance in a pre-structured context  
and with a certain degree of independence

# Level I

**participants per training course:**

- 10 -20

**duration:**

- 60 hours total
- thereof 40 hours practical training

**training location:**

- Spain
- 2020 / 2021 in two different cities

## **basic contents of the training courses (selection)**

- security basics / personal protective equipment / personal safety at work
- behavior in the event of accidents / construction site safety
- material knowledge / knowledge of tools / device knowledge
- transport and storage of materials and construction materials
- safety and quality standards
- drill rigs and drilling equipment
- care and maintenance of drilling rigs and drilling equipment
- construction site setup: storage and work areas
- groundwork / demolition works / excavations and hand excavations
- BHE drilling basics / procedure of an BHE drilling
- duties during an BHE drilling operation / assistance for drill rig operators during drilling
- sampling



### **job specification :**

- driller for Borehole Heat Exchangers

### **target group:**

- experienced well drillers

### **pre-qualification**

- European Qualifications Framework EQF 3-5
- Independent action within the action parameters of work contexts that are usually known but can change.
- Supervision of other people's routine work, taking some responsibility for the evaluation and improvement of work activities.
- Guiding and supervising in work contexts in which unforeseeable changes also occur
- Review and development of one's own performance and the performance of others

## Level II

### **participants per training course:**

- 8 -15

### **duration:**

- 80 hours total
- thereof 40 hours practical training

### **training location:**

- Germany and Spain
- 2020 in Bochum at the GZB
- 2021 in Spain

### **basic contents of the training courses (selection)**

- basics of level 1
- basics of ground source heat pump systems
- geology and hydrogeology / geotechnical risks (confined aquifers, artesian, fissures, measures for damage prevention and damage minimization etc.
- authorities, approvals, standards, guidelines and regulations / water law permission
- drilling methods / direct / indirect / hammer, rotary drilling etc.
- BHE drilling / temporary protective casing / insertion of the BHE pipes
- backfilling / grouting / sampling
- testing of BHE, leakage check, flow check, grouting check, geophysical measurements
- manifolds (types, construction, components, installation and connection)
- commissioning / filling and venting / flow and leakage tests / hydraulic balancing
- documentation / daily reports / drilling profiles and expansion profiles
- documentation of grouting, filling, flow and leakage tests

### **job specification :**

- design of small Borehole Heat Exchangers systems

### **target group:**

- experienced drillers
- drilling company owners
- geologists and engineers
- plumber, HVAC

### **pre-qualification**

- European Qualifications Framework EQF 5-6
- guiding and supervising in work contexts in which unforeseeable changes also occur
- review and development of one's own performance and the performance of others
- management of complex professional activities and assumption of decision-making responsibility in unforeseeable work contexts

## Level III

### **participants per training course:**

- 10 -20

### **duration:**

- 60 hours total
- thereof 30 hours practical training

### **training location:**

- Spain
- 2020 / 2021 in two different cities

## **basic contents of the training courses (selection)**

- basics of level II
- basics, functionality and components of an ground source heat pump system
- functionality heat pump (data sheet)
- basic operating modes (heating, cooling, seasonal storage, bivalent system)
- authorities, approvals, standards, guidelines and regulations
- preparing an application for a water law permit
- geology and hydrogeology
- determination of the thermal properties of the ground
- geotechnical risks, identification and consideration in planning
- basic determination / input parameters for BHE design / heating load
- planning stages / hydraulics basics / pressure loss calculation
- design of BHE

# Thank you for your kind attention

Dr. Claus H. Heske



T: +49 234 32-10221 | E: [claus.heske@hs-bochum.de](mailto:claus.heske@hs-bochum.de)  
International Geothermal Centre - GZB | Hochschule Bochum | Lennerhofstraße 140 | Germany-44801 Bochum

GEFÖRDERT VOM



Bundesministerium  
für Bildung  
und Forschung

SPONSORED BY THE



Federal Ministry  
of Education  
and Research

Förderkennzeichen: 01BE17021C