



## METADATA

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**Authors:** Βραχόπουλος, Μ., Καθηγητής, ΕΚΠΑ, Κούκου, Μ., Επίκουρη Καθηγήτρια, ΕΚΠΑ, Συγγούνας, Ε., Υποψήφιος Διδάκτωρ, ΕΚΠΑ, Τσιμπούκης, Δ., Υποψήφιος Διδάκτωρ, ΕΚΠΑ, Δαλαβούρας, Χ. Υποψήφιος Διδάκτωρ, ΕΚΠΑ

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### Abstract

This textbook focuses on the analysis of the fundamental guidelines for the design of normal (shallow) geothermal energy systems by presenting and analyzing examples of their application in real-world scenarios. This guide serves as a natural continuation of the book "Normal Geothermy - Design Principles of Geothermal Systems and Applications" of the Kallipos Repository and consists of two parts (Part A' and Part B'). In Part A', a direct connection is made with the first book, where all the knowledge and required methodology for ensuring the proper study and design of geothermal systems are summarized in the form of a technical guide. The first chapter presents the types of geothermal systems and typical applications where they are used. The second chapter analyzes the process of estimating the geothermal potential of a region in the Hellenic territory. The third chapter describes the

methodology for designing the three basic types of normal geothermal systems: closed-loop systems (vertical and horizontal) and open-loop systems. The fourth chapter focuses on the proposed method of economic analysis of geothermal systems. Part B' is a guide to technical applications, including detailed examples of real installations applying the methodology described in Part A'. Each presented example consists of independent content, considering different buildings or applications, in different regions with distinct geodynamics, climatic conditions and needs (e.g., installation of a closed-loop vertical geothermal system for cooling, heating, and domestic hot water in a residential building, application of district heating and cooling in public buildings using the open geothermal system, application for heating of greenhouses in the agricultural area using shallow geothermal).

