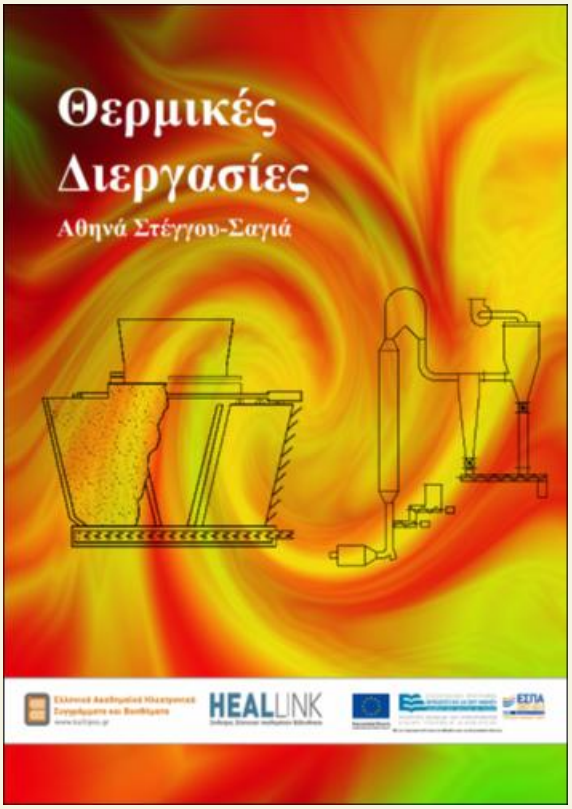

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Abstract

This book is intended for students and engineers interested in topics related to thermal processes. It supports the course on Thermal Process Equipment and Installations taught at the School of Mechanical Engineering of the National Technical University of Athens for approximately 30 years. The first chapter develops the necessary elements of mass transfer theory for understanding computational methods for approximating processes. Processes involving the contact of liquid and gas streams are analyzed in detail, with particular emphasis on modeling the operation of cooling towers and an extensive presentation of construction details. The third chapter presents a computational procedure proposed in the international literature for the sizing of disc towers and towers with packing materials in industrial applications.

Next, the absorption and desorption processes with mass transfer of one component and multiple components are studied in detail, using selected theoretical analysis. The fifth chapter of the book presents the necessary theoretical computational background for drying, as well as typical examples of industrial dryers. The field of thermal processes is very extensive. The sixth chapter on adsorption provides information on the possibility of removing low-concentration components from gas or liquid mixtures due to the selective properties of the adsorbent material. The seventh chapter deals with refrigeration processes. The reader's interest stems from the need for information on the protection of the stratospheric ozone layer as a function of the load imposed by refrigeration and air conditioning systems.

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