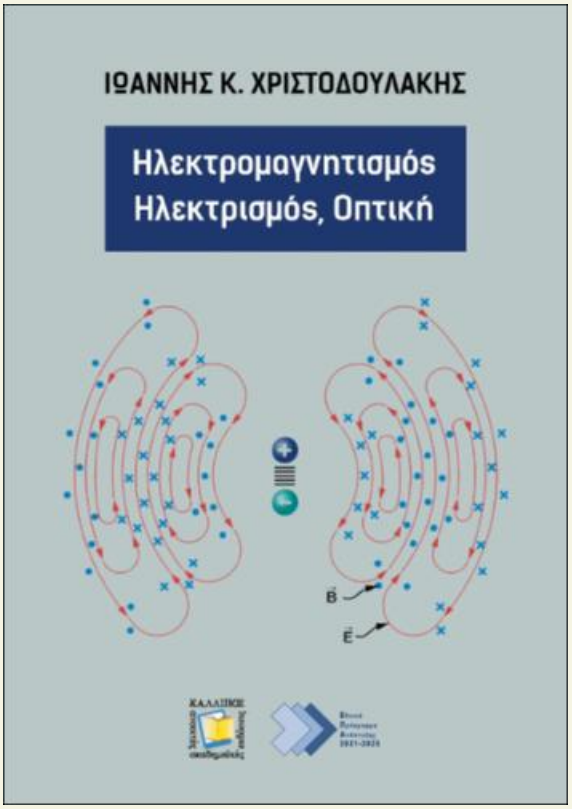

METADATA

Title: Electromagnetism – Electricity – Optics

Other Titles: -

Language: Greek

Authors: Christodoulakis, I., Senior Research Fellow, UOP

ISBN: 978-618-223-311-0

Subject: NATURAL SCIENCES AND AGRICULTURAL SCIENCES

Keywords: Electric charge / Electric field / Electric current / Electric circuits / Alternative current

Bibliographic Reference: Christodoulakis, I. (2025). Electromagnetism – Electricity – Optics [Undergraduate textbook]. Kallipos, Open Academic Editions. http://dx.doi.org/10.57713/kallipos-1060

Abstract

This Physics book deals with the thematic subjects of Electromagnetism, Electricity and Optics. As a university textbook, it is mainly addressed to undergraduate students and for this reason an attempt has been made to present the physical concepts, quantities and phenomena, which it deals with, in a way that is both simple and complete. In order for new students to transition as smoothly as possible from the educational experience of school to the completely different requirements, needs and conditions of the studies at a university department, an effort has been made to adapt this book to these particularities. More specifically, the content, the way of presentation, the level of the questions and the exercises and above all, the utilization of the new functional features offered by the electronic-interactive format of the textbook have been made with the aim of enhancing the students' interest in learning and encouraging his personal quest. A key feature of the proposed book is the extensive use of simulation applications of many natural phenomena, as well as the abundance of references to other free sources. This approach was chosen so that, if possible, each student could find the stimuli suitable for him/her and the sources through which he/she would eventually succeed in mastering knowledge. Completing each chapter, the reader finds one, or more, experimental applications that he/she can implement in virtual laboratories by following the relevant instructions given. The purpose of these is to contribute to a deeper understanding of the concepts studied in each chapter and to give the reader the opportunity to experimentally establish interesting aspects of the studied phenomena. Throughout the book, the connections between theory and experiment are emphasised, emphasising the importance of laboratory work—whether physical or simulated—in mastering these topics.

The Project is funded by the National Development Programme 2021-2025 of the Ministry of Education and Religious Affairs and implemented by the Special Account for Research Funds of the National Technical University of Athens and the Hellenic Academic Libraries Link.