Advances in Thermal Engineering : Emerging research and opportunities

by

Dr. Mahendra Kumar Verma

Assistant Professor, Department of Mechanical Engineering, Amity University, Noida.

AG PH Books

2022

First Edition: 2021

ISBN: 978-81-955340-8-1

Published by:

Academic Guru Publishing House,

B-6, Shopping Complex, Ground Floor, Hoshangabad Rd, behind Indian Oil Petrol Pump, Vidya Nagar, Bhopal, Madhya Pradesh 462026

Website: https://www.agphbooks.com

About the Book

This book is a comprehensive guide to the field of thermal engineering, covering key concepts such as heat flow enhancement techniques, heat exchangers, heat-powered cooling systems, and thermal fluid management. The book begins with an introduction to the basics of thermal energy and the principles of heat transfer, including conduction, convection, and radiation. It then delves into the design and operation of heat exchangers, including different types and their applications.

This book is suitable for engineers, students, and professionals working in or interested in the field of thermal engineering. It provides a thorough understanding of the key concepts and principles of thermal engineering, as well as practical guidance on the design and operation of thermal systems. With its clear and concise writing style, this book is an essential resource for anyone seeking to deepen their knowledge of thermal engineering.

Preface

Thermal engineering is a branch of engineering that deals with the generation, use, conversion, and exchange of thermal energy. It plays a vital role in a wide range of industries, from power generation and transportation to refrigeration and air conditioning.

One important aspect of thermal engineering is the enhancement of heat flow, which can be achieved through various techniques such as conduction, convection, and radiation. Another key area is the design and operation of heat exchangers, which are used to transfer heat between fluids or gases with different temperatures.

Heat-powered cooling systems, such as absorption refrigerators, use waste heat as a source of energy to drive the cooling process. These systems have the potential to significantly reduce energy consumption in a variety of applications.

Proper thermal fluid management is also crucial in many thermal engineering systems. This includes the selection and handling of the appropriate thermal fluid, as well as the design and maintenance of the system to ensure efficient heat transfer.

This book aims to provide a comprehensive overview of these and other key concepts in thermal engineering, including the latest advancements and developments in the field. It is intended for engineers, students, and professionals working in or interested in the field of thermal engineering. The use of waste heat as a source of energy in heat-powered cooling systems, such as absorption refrigerators, and the importance of proper thermal fluid management in ensuring efficient heat transfer in various systems is also discusses. In addition, the book covers the latest advancements and developments in the field of thermal engineering.

(ISBN: 978-81-955340-8-1)