

# **Handbook of Trends in Engineering Technology and Research**

**CHITARANJAN DALAI**

Assistant Professor in the Department of Civil Engineering, Odisha University of Technology  
Bhubaneswar, India.

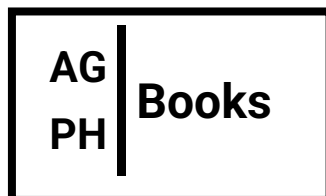
**Prof. (Dr.) CHANDRA KUMAR DIXIT**

Dean, Faculty of Science and Technology, Dr Shakuntala Misra National Rehabilitation University  
Lucknow UP India, 226017.

**&**

**Dr. SURYABHAN PRATAP SINGH**

Assistant Professor in the Department of Information Technology of Institute of Engineering and  
Technology, Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur, Uttar Pradesh, India



*Handbook of Trends in Engineering Technology and Research*

**2022**

First Edition: 2022



ISBN: 978-93-94339-64-4

**© Copyright Reserved by the publishers**

Publication, Distribution and Promotion Rights reserved by Academic Guru Publishing House, Bhopal, Madhya Pradesh (Publisher) Despite every effort, there may still be chances for some errors and omissions to have crept in inadvertently.

No part of this publication may be reproduced in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise, without the prior permission of the publishers. The views and results expressed in various articles are those of the authors and not of editors or publisher of the book.

**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**

There are continuous advances made every day in the field of engineering and technology which are trying to usher us into a new technical era. This book is an attempt to cover some of these emerging trends in different fields such as manufacturing, artificial intelligence, robotics, education, transportation, environment etc. and provide an updated review on the ongoing research and developments in the same fields. The research papers selected for this book present a wide literature survey dealing with the information about the scientific principles and applications of the technology.

Because there is so much hype surrounding emerging technology and disruptive technology, it can be challenging for the business leaders to make the right decisions about the investments. This is especially true in situations where the most exciting technologies are still in the process of being developed in laboratories, academic institutions, and early-stage startups. Even though the landscape of technology is always shifting, businesses still need to have a solid understanding of which technologies will be responsible for the most significant economic shifts and digital disruptions in the next decade.

Students, professors, entrepreneurs, tech savvy or a layman, anyone can benefit from this book as the language used is simple and the information presented is in an educative and systematic fashion which keeps the readers interested while going through the content. All the reference papers included in this book are from credible sources and special care has been taken to include the latest advances keeping in tune with the purpose of this book.

## **Preface**

In the coming years, many fundamental activities and interactions, such as the ways in which we travel, work, as well as communicate with one another, are expected to undergo significant changes brought about by a variety of emerging technologies, which are also expected to see significant improvements as a result of these changes. People, businesses, and the economy as a whole stand to benefit significantly from the introduction of new technologies such as blockchain, artificial intelligence, quantum computing, smart factories, cobots, additive manufacturing, cloud computing, vehicular adhoc, and virtual and augmented reality, amongst others. Emerging technologies are going to have a significant impact not just on the most prosperous firms of the future but also on the educational, security, environmental, medical, and transportation sectors.

This book presents review works by a number of authors in the field of engineering and technology which are going to shape our future. A vast literature survey has been included to detail the working, mechanism and the applications of the technology in different fields. This book is suggested for anyone who is interested in keeping themselves updated about the latest developments, especially engineering students and aspiring future entrepreneurs.

Modern gadgets and digital technologies influence every sphere of life today, hence it is today necessary to keep in touch with the advances in the field. Keeping this in mind, this book has been designed so that everyone be in touch with the latest advances and utilize the emerging technologies to the fullest while further contributing in their development and management.

**(ISBN: 978-93-94339-64-4)**