## 10th National Conference on Emerging Trends in Engineering and Technology



#### **Organized By:**



### Bharati Vidyapeeth's College of Engineering, Kolhapur

Accredited by NAAC with 'A' Grade

(Approved by AICTE, New Delhi and Affiliated to Shivaji University, Kolhapur)

Near Chitranagari, Morewadi, Kolhapur 416 013, Maharashtra.

## Date: 5th April 2024

In Association with



www.conferenceworld.in



ISBN: 978-93-91535-89-6

## 10th National Conference on Emerging Trends in Engineering and Technology

# NGETET-2024

### Editors

Mrs. S. M. Mulla Dr. J. K. Patil Dr. V. R. Ghorpade Dr. H. M. Kadam

**Publish By:** A.R. Research Publication

#### **Preface**

Conference world and AR Research Publication is a fast-growing group of academicians in Engineering, Sciences, and Management. A R Research Publication is also known for its fast reply and zero-error work. The conference world has organized various conferences at renowned places namely Delhi University; New Delhi, Jawaharlal Nehru University; New Delhi, PHD Chamber of Commerce and industry New Delhi, YMCA New Delhi, India International Centre New Delhi, Sri Venknteswara College of Engineering and Technology, Andhra Pradesh, Vedant Engineering Kota and many more places across the country.

We are very pleased to introduce the proceedings of the 10th National Conference on Emerging Trends in Engineering and Technology were addressed by the papers presented at the conference. The level of Interest in the subject matter of the conference was maintained from previous events and over 12 suitable papers were submitted for presentation at the conference.

Papers were well represented at the conference to arouse a high level of international interest. The presented papers maintained the high promise suggested by the written abstracts and the program was chaired in a professional and efficient way by the session chairmen. The program was chaired professionally and efficiently by the session chairmen also highly gratifying, showing the high level of interest in the subject. This Proceeding provides a permanent record of what was presented. They indicate the state of development at the time of writing of all aspects of this important topic and will be invaluable to all authors in the field for that reason. Finally, it is appropriate that we record our thanks to our fellow members of the Technical Organizing Committee for encouraging participation from those areas. We are also indebted to those who served as chairmen, without their support, the conference could not have been the success that it was. We also acknowledge the authors themselves, without whose expert input there would have been no conference. Their efforts made a great contribution to its success.

#### **About the Conference**

The purpose of National Conference on Emerging Trends in Engineering and Technology (NCETET-2024) is to bring together leading researchers, engineers and scientists in the domain of interest for India. The theme of the conference is "Era of Innovation". All full paper will be peer reviewed and evaluated based on novelty, technical and/or research content. Selected paper will be published in conference proceedings with ISBN number.

#### **About IARDO**

International Association of Research and Developed Organization (IARDO) is a leading organization in the field of academic research activities under the banner of India Educational Charitable Trust (Regd).

International Association of Research and Developed Organization (IARDO) is an apex body that promotes and encourages commendable achievements from all over the country. The organization under conference world regularly organizes national and international level conferences with the help of its members to promote socially responsible education practices and sustainable development in economic as well social front in India.

#### **About the College**

Bharati Vidyapeeth's College of Engineering, Kolhapur since its establishment in 2001, has strived to provide the best engineering education to its students through well qualified and dedicated faculty and provision of well equipped modern labs. College started in the year 2001 with the following programmes :-

- 1. Computer Science and Engineering
- 2. Electronics and Telecommunication Engineering
- 3. Information Technology

All with an intake of 60. A new branch namely Mechanical Engineering from 2006-2007, Civil Engineering from academic year 2011-2012 and Computer Science and Engineering (AIML) from academic year 2021-2022 were added with an intake of 60 each. The Bharati Vidyapeeth college of Engineering is a private, self-financing institution. The college is recognized by All India Council for Technical Education (AICTE) and is affiliated to Shivaji University, Kolhapur.

#### **Chief Patron**

**Dr. H. M. Kadam** Regional Director

#### Patron

**Dr. V. R. Ghorpade** Principal **Dr. J. K. Patil** Vice Principal

#### Convener

Mrs. S. M. Mulla Convener & HOD CSE(AIML)

Proceeding of the conference has been published with ISBN: 978-93-91535-89-6 10th National Conference on Emerging Trends in Engineering and Technology [NCETET-2024] organized at Bharati Vidyapeeth's College of Engineering, Morewadi, Kolhapur 416 013, Maharashtra. Total 25 papers were received for the conference and 12 papers were shortlisted by the committee.

#### **Published by**

#### **AR Research Publication**,

3/186 Santpura Govindpuri Modinagar- 201201. Dist: Ghaziabad International Conference on Recent Advancement In Engineering,Management & Technology [ICRAEMT-2024] (Vol-01) Copyright © 2023, by AR Research Publication (India)

No part of this publication may be reproduced or distributed in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise or stored in a database or retrieval system without the prior written permission of the publishers. The program listing (if any) may be entered, stored and executed in a computer system, but they may not be reproduced for publication.

This edition can be exported from India only by the publishers, AR Research Publication

(India) ISBN: 978-93-91535-89-6

Managing Director: Gauri Sharma

Senior Researcher—Product Development: Ms. Pratima Singh

Head—Production (Higher Education and Professional): Satinder Kulkarni

Information contained in this work has been obtained by AR Research Publication (India), from sources believed to be reliable. However, neither AR Research Publication (India) nor its authors guarantee the accuracy or completeness of any information published herein, and neither AR Research Publication (India) nor its authors shall be responsible for any errors, omissions, or damages arising out of use of this information. This work is published with the understanding that AR Research Publication (India) and its authors are supplying information but are not attempting to render engineering or other professional services. If such services are required, the assistance of an appropriate professional should be sought.

Cover Design: Deepak Kumar