

**International Conference on**  
**RECENT ADVANCEMENT IN ENGINEERING,**  
**MANAGEMENT & TECHNOLOGY**

**ICRAEMT-2024**

**Organized By:**



**Mangalmay Institute of Engineering & Technology**

(Approved by AICTE and affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow)

8 and 9, Knowledge Park II, Greater Noida, Uttar Pradesh 201310

**20<sup>th</sup> January, 2024**

**In Association with**



[www.conferenceworld.in](http://www.conferenceworld.in)



[www.iardo.com](http://www.iardo.com)

---

**ISBN: 978-93-91535-68-1**

**International Conference on**  
**RECENT ADVANCEMENT IN ENGINEERING,**  
**MANAGEMENT & TECHNOLOGY**

**ICRAEMT-2024**

**Editors**

**Dr. Narender Chinthamu**

**Dr. Chetan Khemraj**

**Dr. Geeti Sharma**

**Dr. Sanjay Pachauri**

---

***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 International Conference on Recent Advancement In Engineering, Management & Technology. The Recent Innovations & Development in field of 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 25 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 aim of this conference is to unite academicians, researchers, consultants, business experts, and students under one roof. This conference seeks to create a platform for discussion and new ideas. It will offer an interactive forum for the presentation of cutting-edge discoveries and creative researchers' findings in the domains of technology, engineering, and management.

## **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**

Established in 2002, Mangalmay Group of Institutions (MGI) is one of the premier NAAC accredited Institution with a prime focus on Innovation, Excellence and Nurturing global leaders for a sustainable future. We incorporate Knowledge, Industry experience, Research, and International exposure in our curriculum, to offer comprehensive educational program to the students. The post graduate and graduate programmes offered at Mangalmay are affiliated to AKTU, Lucknow (formally known as U.P. Technical University) and approved by the All India Council for Technical Education (AICTE) Ministry of HRD, New Delhi. Institute is also affiliated to C.C.S University Meerut.

Our vision is to disseminate knowledge in the field of Management, Engineering, Bio-Technology, Commerce and Education. Driven by creativity and curiosity, Mangalmay

strive to provide an educationally outstanding experience for students. Mangalmay has been ranked among the best B.Tech and MBA college in Delhi NCR.

Mangalmay Institute of Engineering and Technology (MIET) has evolved as one of the best B.Tech College with global reputation that strives for high quality education. The mission of the group is to offer innovative opportunities to our students to showcase their creativity and talent thereby making positive impact on the society.

Shri. Atul Mangal, Chairman, MGI, Mr. Aayush Mangal, Vice Chairman, MGI & Ms. Prerna Mangal, Executive Director, MGI, are the dynamic leaders who believe in inculcating a culture of innovation and imparting quality education for students. They believe in fostering whole-person Integral growth of students by providing excellent academic delivery and infrastructure to their students. They also believe in offering great opportunities for all round development of students.

There is a strong focus on research and development of faculty members from different stream. We also offer cross-organizational collaboration and liaise with different business communities.

# Message

प्रो० जय प्रकाश पाण्डेय  
कुलपति  
Prof. Jai Prakash Pandey  
Vice Chancellor



डॉ० ए०पी०जे० अब्दुल कलाम प्राविधिक विश्वविद्यालय  
उत्तर प्रदेश, लखनऊ  
Dr. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY  
Uttar Pradesh, Lucknow

Dated : 15.01.2024



## MESSAGE

It is a matter of great pleasure that Mangalmay Institute of Engineering & Technology, Greater Noida is organizing an International Conference on "Recent Advanced in Management & Technology" on 20<sup>th</sup> January, 2024. I am pleased to write this message which will be included in the Souvenir of the internal conference.

Organizing conferences is an important activity useful for remaining up-to-date with the recent developments as also with the future needs of the industry. The topics to be covered during the conference would take care of all the essential aspects of the theme of the conference. I am sure that the faculty as well as the students would get to learn from the experts participating in the conference.

I hope the international conference will provide an excellent forum for exchange of information on latest developments in the fast emerging areas of advance computing and provide stimulus for interdisciplinary research.

I wish the conference a great success.

(Prof. Jai Prakash Pandey)  
Vice-Chancellor

# Message



**Shri Atul Mangal**  
Chairman Sir, MGI

It gives me immense pleasure that Mangalmay Institute of Engineering & Technology is organizing an International Conference on Recent Advancement in Engineering, Management & Technology (ICRAEMT-2024) during 20th January, 2024 at Mangalmay Institute of Engineering & Technology, Gr. Noida. The central theme of the conference is "AI & ML". ICRAEMT-2024 provides an opportunity for meeting of International Researchers, Engineers, Scientists and specialists in the various research and development fields of Engineering and Technology. The conference offers a premise for global experts to gather and interact intensively on the topics of Electrical and Electronics, Electronics and Communication, Computer Science and Information Technology. I hope eminent speakers will cover the theme AI & ML from different perspectives. I am privileged to say that this conference will definitely offer suitable solutions to the global issues. The success of this Conference is solely on the dedication and efforts of innumerable people who started working on the preparations for almost a year in many ways to make this Conference become a reality. Eventually I express my special thanks and appreciation to all. I wish ICRAEMT-2024 all the best for its success.

**Shri Atul Mangal**  
Chairman Sir, MGI

# Message



**Shri Aayush Mangal**

Vice Chairman Sir, MGI

India, one of the World's largest economies has made tremendous strides in the economic and social developments in past decades and is poised for even faster growth in the time to come. Great potential exists for increasing productivity by shifting from low technology and subsistence activities in industry, agriculture and service sectors to activities based on advanced, modern technology and knowledge. I believe that this multidisciplinary conference will be one of finest opportunities for academicians, scientists, professionals and researchers of various disciplines from all over the world to share and express their views, discuss the practical challenges encountered and the solutions.

The Mangalmay Institute of Engineering & Technology will be surely one of those Institutes committed to building a better world for all and the conference "ICRAEMT-2024" will work as catalyst for the same. Hope it will be a splendid event, both in terms of intellectual quality and social gratification.

**Shri Aayush Mangal**

Vice Chairman Sir, MGI



# Message



I am pleased to welcome you all for the International Conference on Recent Advancement in Engineering, Management & Technology (ICRAEMT-2024) being organized during 20th January, 2024 by Mangalmay Institute of Engineering & Technology, Gr. Noida. Mangalmay Institute of Engineering & Technology is a camouflage wealth of knowledge, innovation and technology that lies within. Mangalmay Institute of Engineering & Technology in itself is a niche of opportunities to all aspiring engineers and researchers. The events in the conference are targeted towards researchers, practitioners, professionals, educators and students to share their experience, innovative ideas, issues, recent trends and future directions in field of Engineering and Science and Technology. This conference is a unique forum for exchange of innovative ideas, technical expertise for technological advancements etc. in this evergreen field. It includes keynote address from Academicians and paper presentation by research scholars. It is a matter of joy for us to welcome the participants to this conference. In a nutshell, the conference promises to transcend to a new and unprecedented level of excellence. It is thus the zenith where technology and skill meets opportunities and guidance. It is a milestone that one would not dare to miss. I wish ICRAEMT-2024 a grand success.

**Ms. Prerna Mangal**  
Executive Director Ma'am, MGI

# Message



**Dr. Chetan Khemraj**

Director, Mangalmay Institute of Engineering  
And technology, Greater Noida.

It gives me immense pleasure to be a part of this hosting team of “International Conference on Recent Advancement in Engineering, Management & Technology (ICRAEMT-2024)”. The conference intends to bring together scientists, engineers and practitioners from different disciplines to discuss concerns related to various computation techniques in science and technology. I take this opportunity to welcome all the delegates of the conference. On behalf of whole ICRAEMT-2024 team, I would like to thank all the authors, sponsors and keynote speakers for their support and co-operation. The rapid development in technologies and changes in lifestyle impose various issues in many countries. The conference ICRAEMT-2024 has been crafted to challenge the hurdles and we are fortunate to have leading speakers to share their experience and perspectives to achieve smart solutions through their innovation. I hope that the conference serves as a locus for interdisciplinary, a space for discourse and collaboration. I would like to express my appreciation to the organizing committee for their dedicated efforts to materialize the conference. I hope all the participants will have a fruitful and beneficial experience. Finally, I congratulate HOD, college faculty, student representatives and participant for their efforts in organizing and participating in this conference and wish the conference all the success.

**Dr. Chetan Khemraj**

Director, MIET

## **Chief Patron**

**Mr. Atul Mangal**, (Chairman, MGI.)

## **Patron**

**Mr. Aayush Mangal**, (Vice Chairman, MGI)

**Mrs. Prerna Mangal**, (Executive Director, MGI)

## **Chief Guest**

**Dr. T. R. Sharma**,

Retd. Scientist, CEERI, Palani

## **Chief Mentor**

**Prof. (Dr.) J. P. Pandey**,

Hon'ble Vice Chancellor, AKTU, Lucknow.

## **Guest of Honor**

**Dr. S. K. Mahajan**,

Retd. Scientist, CEERI, Palani

**Ms. Reena Singh (IAS)**,

Registrar, AKTU, Lucknow.

**Prof. (Dr.) Manish Gaur**,

Pro Vice Chancellor, AKTU, Lucknow

## **Keynote Speaker**

**Mr. Ashish Kumar**

TCS-Manager

**Mr. V. Edward Angello Thomas**

ICT academic

**Narender Chinthamu**

Senior Enterprise Architect at Wesco, MIT CTO,

Chief Technology Officer at KK Capital Investments.

**Dr. Nilesh Uke**

Professor and Principal (Computer Engineering)

Trinity Academy of Engineering

**Dr. K.V.L.N. Acharyulu**

Associate Professor, Dept. of Mathematics, Bapatla Engineering College

delivered on "**Special Features of Ecological Ammensalism**"

## **Conference Convener**

**Dr. Chetan Khemraj** (Director, MIET)

## **Managing Board:**

**Dr. Yuvraj Bhattnagar** (Director – IQAC)

**Dr. Geeti Sharma**, (Director MIMT)

## **Organizing Committee Members**

**Dr. Sanjay Pachauri**

HOD, MIET

**Dr. Garima Srivastava**,

Coordinator, MIET.

**Dr. Pradeep Kumar**

## **Session Chair**

**Dr Pradeep Kumar**

**Dr Pragati Sinha**

**Dr Ishwar Singh**

**Dr Amit Bhati**

**Ms. Reshu Gupta**

## **Advisory Board**

**Dr. Nagaraja V**

**Dr. Badiuddin Ahmed**

**Prof. Dr. Abhijit Chakraborty**

**Dr. Venkata Ramana. Teppala**

**Dr. Koduru Chandra Mouli**

**Dr. Rajesh Vyas**

**Dr. N. Srinivasan**

**Dr. Nilesh Uke**

**Dr. M. Devendra**

**Dr. Rajiv Kumar Singh, New Delhi**

**Prof (Dr) S M Husain**

**Prof. Vibha Asthana**

**Dr. C.V. Ravishankar**

Proceeding of the conference has been published with **ISBN: 978-93-91535-68-1** International Conference on Recent Advancement In Engineering, Management & Technology [ICRAEMT-2024] organized at Mangalmay Institute of Engineering & Technology Knowledge Park II, Greater Noida, Uttar Pradesh 201310. Total 40 papers were received for the conference and 25 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: **978-93-91535-68-1**

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

**Schedule of “One Day International Conference on Recent Advancement in  
Engineering, Management & Technology”  
Day & Date: Saturday, January 20, 2024  
Venue: -Auditorium, Block-B**

**Google Meet joining call link: <https://meet.google.com/bma-eavk-qhb>**

<b>Time</b>	<b>Activity</b>	<b>Dice In -Charge</b>
9:40 AM - 9:55 AM	Reported in Auditorium	
10:00 AM - 10:15 AM	Welcome of Dignitaries (Honourable Chairman, Shri Atul Mangal sir  Honourable Vice-chairman, Shri Aayush Mangal sir,  Respected Executive Director, Ms. Prerna Mangal Ma'am,  Respected Director Computer Science Engineering – Dr. Chetan Khemraj Sir,  Respected HoD Computer Science Engineering – Dr. Sanjay Pachauri Sir,  Respected Coordinator Computer Science Engineering- Dr. Garima Srivastava Ma'am  About the Conference	Anchors 1
10:15 AM - 10:25AM	Lamp Lightening & Tulsi Sampling	Anchors 1
10:25AM – 10:26AM	Introduction of Director Sir	Anchors 1
10:26AM – 10:36AM	Director Sir	Director Sir
10:36AM- 10:37 AM	<b>Chief Guest</b> Introduction of Dr. T. R. Sharma, Retd. Scientist, CEERI, Plani	Anchors 1
10:37 AM - 11:07 AM	Dr. T. R. Sharma, Retd. Scientist, CEERI, Plani	Dr. T. R. Sharma, Retd. Scientist, CEERI, Plani

11:07AM – 11:37 AM	<b>Tea Break</b>	
11:37 AM - 11:38 AM	<b>Guest of Honor</b> Introduction of Dr. S. K. Mahajan, Retd. Scientist, CEERI, Plani	Anchors 1
11:38 AM - 12:08 PM	Dr. S. K. Mahajan, Retd. Scientist, CEERI, Plani	Dr. S. K. Mahajan, Retd. Scientist, CEERI, Plani
12:08 PM – 12:09 PM	<b>Keynote Speaker-1</b> Introduction of Mr. Ashish Kumar, TCS-Manager	Anchors 1
12:09 PM – 12:39 PM	Mr. Ashish Kumar, TCS-Manager	Mr. Ashish Kumar, TCS-Manager
12:39 PM – 12:40 PM	<b>Keynote Speaker-2</b> Introduction of Mr. V. Edward Angello Thomas, ICT academic	Anchors 1
12:40 PM – 1:10 PM	Mr. V. Edward Angello Thomas, ICT academic	Mr. V. Edward Angello Thomas, ICT academic
1:10 PM – 2:10 PM	<b>Lunch Break</b>	
2:10 PM – 2:12 PM	<b>Online Keynote Speaker-3</b> Introduction of Narender Chinthamu, Senior Enterprise Architect at Wesco, MIT CTO, Chief Technology Officer at KK Capital Investments.	Anchors 2
2:12 PM – 2:42 PM	Narender Chinthamu, Senior Enterprise Architect at Wesco, MIT CTO, Chief Technology Officer at KK Capital Investments.	Narender Chinthamu, Senior Enterprise Architect at Wesco, MIT CTO, Chief Technology Officer at KK Capital Investments.
2:42 PM – 2:44 PM	<b>Online Keynote Speaker-4</b> Introduction of Dr. Nilesh Uke Professor and Principal (Computer Engineering) Principal – Trinity Academy of Engineering	Anchors 2
2:44 PM – 3:14 PM	Dr. Nilesh Uke Professor and Principal (Computer Engineering) Chairman– Board of Studies (Computer Engg), SPPU Member - Academic Council SPPU Member – Research and Recognition Committee SPPU Member - Board of Studies (Information Technology Engg), VIT Principal – Trinity Academy of Engineering	Dr. Nilesh Uke Professor and Principal (Computer Engineering) Trinity Academy of Engineering

3:14 PM – 3:21 PM	<b>Memento Distribution</b> Dr. T. R. Sharma, Retd. Scientist, CEERI, Plani, Dr. S. K. Mahajan, Retd. Scientist, CEERI, Plani, Mr. Ashish Kumar, TCS-Manager, Mr. V. Edward Angello Thomas, (ICT academic)	Anchors 2	
3:21 PM – 4:30 PM	<b>Online Presentation Tracks</b>		
3:21 PM – 4:30 PM	<b>Parallel Offline Presentation Tracks-1</b>	<b>Place:</b> Auditorium	<b>Faculty In-Charge:</b> Anchors 2 + Ms. Garima Kaushik, Dr. Pragati Sinha
3:21 PM – 4:30 PM	<b>Parallel Offline Presentation Tracks-2</b>	<b>Place:</b> Room no. 001	<b>Faculty In-Charge:</b> Anchors 2 + Ms. Radha, Mr. Shubham Goel
4:31 PM – 4:45 PM	Prize Distribution (Best Poster Award)		Anchors 2
4:46 PM – 4:56 PM	Vote of Thanks (Director/HoD Sir)		Director/HoD Sir
4:56 PM – 5:00 PM	National Anthem		Anchors 2