# M2COTA

## AIM

*To provide participants with an in-depth understanding of mathematical modelling and computational optimization techniques. The workshop seeks to bridge theoretical advancements with real-world applications in various domains, enhancing research and problem-solving capabilities.*

## OBJECTIVES

- To provide foundational and advanced insights into evolutionary and non-smooth optimization techniques, including their application under uncertainty.
- To explore deep learning, artificial intelligence, and machine learning methodologies and their practical applications across domains.
- To enhance understanding of mathematical modeling in dynamical systems, engineering structures, vibration, and acoustics.
- To introduce participants to soft computing techniques and their relevance in biomedical and complex system optimization.
- To encourage interdisciplinary collaboration by integrating optimization, control theory, and AI-driven modeling approaches.

## HOW TO REGISTER

*Fill the Google form (Link) where you need to upload filled-in registration form, duly signed by the HOD/Dean/Institute Authority.*

***You can also scan the QR code to register***

## National Institute of Technology Silchar

## विज्ञान एवं प्रौद्योगिकी विभाग
## DEPARTMENT OF SCIENCE & TECHNOLOGY

## IMPORTANT DATES

- **REGISTRATION DEADLINE:** ~~APRIL 30, 2025~~ **MAY 06, 2025**
- **INTIMATION OF SHORT-LISTED PARTICIPANTS:** ~~MAY 01, 2025~~ **MAY 07, 2025 (MAXIMUM INTAKE : 40)**
- **WORKSHOP DATES: MAY 12 - MAY 16, 2025**

## TRAVEL SUPPORT

**Short-listed participants will be reimbursed 2ⁿᵈ Sleeper Train/Bus fare (To and fro) in the shortest route, subject to a maximum limit of INR 2,000 only, on production of original travel tickets.**

## GET IN TOUCH

📞 +91 8292003793 (Dr. Santan Kumar)
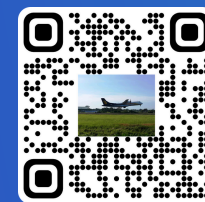+91 9435176446 (Dr. Kedar Nath Das)

✉ m2cota@nits.ac.in

📍 NIT Silchar, Cachar, 788010 Assam, India

**Directions**
- from railway station to NIT Silchar (map)
- from airport to NIT Silchar (map)

## ABOUT THE WORKSHOP

ANRF (DST) and NIT Silchar sponsored National Workshop on **"Mathematical Modelling and Computational Optimization: Tools and Applications (M2COTA)"** is a one week event organized by the **Department of Mathematics, National Institute of Technology Silchar**, from **May 12, 2025,** to **May 16, 2025**.

The workshop will cover key topics such as evolutionary optimization, soft computing, bio-medical optimization, applications of AI, ML and deep learning, engineering modelling, providing participants with cutting-edge methodologies and computational tools. The event will feature expert lectures from distinguished professors and researchers from **IITs, ISI, ISRO, DRDO and NIT**, offering a valuable platform for learning, networking, and collaboration.

## ABOUT NIT SILCHAR

Established in 1967 as a regional engineering college in Assam, the National Institute of Technology Silchar, is one of the 31 national institutes of technology in India. The National Institutes of Technology Act of 2007 upgraded it to a National Institute of Technology and declared it an Institute of National Importance in 2002.

Six engineering degree-offering branches and five non-engineering branches comprise the institution. Currently, the institution offers six undergraduate engineering courses, numerous post-graduate courses, and PhD degrees in areas such as civil, mechanical, electrical, electronics and communication, electronics and instrumentation, and computer science. The non-engineering branches include mathematics, physics, chemistry, humanities and social sciences, and management studies. The 2024 Asia University Rankings rank NIT Silchar at 178. The NIRF Rankings 2023 rank NIT Silchar 40th in engineering and 83rd overall. The QS Asia University Ranking 2023 places NIT Silchar in the rank band 401–450. NIT Silchar is ranked in rank band 601–800 in The World University Rankings 2023. NIT Silchar has been ranked in the rank band 501–600 for engineering in the The World University Ranking 2023.

## WORKSHOP THEMES

- Evolutionary Optimization and Applications
- Deep Learning and its Applications
- Modelling of Structural Vibration and Acoustics
- Mathematical Modelling of Dynamical Systems, Optimization and Control
- Non-smooth Optimization and Optimization under Uncertainty
- Mathematical Modelling of Engineering Structures
- Soft Computing and Bio-medical Optimization
- Applications of AI & ML

## ORGANIZING COMMITTEE

- **Chief-Patron**
  Prof. Dilip Kumar Baidya
  Director, NIT Silchar
- **Patron**
  Prof. Nalin Bihari Dev Choudhury
  Dean (R&C), NIT Silchar
- **Convener**
  Dr. Kedar Nath Das
  Head, Dept. of Mathematics, NIT Silchar
  kedarnath@math.nits.ac.in
- **Coordinator**
  Dr. Santan Kumar
  Dept. of Mathematics, NIT Silchar
  santan@math.nits.ac.in
- **Organisers**
  Faculty Members, Dept. of Mathematics, NIT Silchar

## REGISTRATION FEE DETAILS
### (Excluding Accommodation*)

- **Research Scholar : INR 2,000**
- **Faculty : INR 3,000**
- **Industry Personnel : INR 4,000**
- ***Accommodation** is expected to be provided on nominal payment basis to all the outstation participants at NIT Silchar Guest House, subject to availability at INR 300 per person per night on triple sharing basis.*
- **Note :** Kindly pay the registration fee and accommodation charge after receiving the confirmation mail on ~~01-05-2025~~ 07-05-2025.

## TENTATIVE SPEAKERS

**Prof. Akshay Kumar Ojha**
IIT Bhubaneswar

**Prof. Nishchal K. Verma**
IIT Kanpur

**Prof. Shiv Kumar Gupta**
IIT Roorkee

**Dr. Goutam Paul**
ISI Kolkata

**Dr. Vikash Kumar Sharma**
DRDO, New Delhi

**Dr. Raghavendra B. Kulkarni**
ISRO, Bengaluru

**Dr. Teena Sharma**
IIT Guwahati

**Dr. Kedar Nath Das**
NIT Silchar

**Dr. Santan Kumar**
NIT Silchar