

## INTRODUCTION

In the last few decades, high performance numerical computation for differential equations has played very well established tools for the efficient, highly accurate numerical solution of integral equations, ordinary and partial differential equations in computational science and engineering. The theoretical convergence analysis and adaptive hp- and spectral element versions currently experience strong development.

Recently, there has been resurgence in the interest of developing a deeper understanding of the dynamical system approach for modelling biological, ecological, and many more systems, perhaps motivated by studies that question the existence of equilibrium, its uniqueness, stability, and attraction domains, whereas others argue that understanding the process or trajectory toward equilibrium is just as important as it involves understanding the learning process and behavioural adaptations.

The main objective of this workshop plans to bring researchers together working on different aspects of differential equations and their applications and to foster interaction among researchers from both industry and academia. In this workshop, we will host various lecture and practical sessions on the specified theme given by eminent speakers.

## OBJECTIVES

- To provide a platform for academicians all over the India to promote, share and discuss various new issues and new developments in different areas of applied mathematics
- To provide directions for future research and development by identifying key problems and their viable solutions and opportunities.
- To interrelation between theory and practice.

## CONTENTS

- Mathematical & Computational Modeling
- Bio-Chemical and Biological Engineering
- Mathematical Ecology and Eco-epidemiology, Nonlinear Dynamics

- Numerical Analysis, Finite Element Method, Interface Problems
- Numerical Solutions to Elliptic PDEs
- Discrete Adjoint Approaches for Steady and Unsteady Flows
- Adjoint Based Error Estimators and Goal Oriented Adaptation in Mesh Free Framework

## TENTATIVE SPEAKERS

- Prof. Sankar Dhar, IEST Shibpur
- Prof. Sovan Lal Das, IIT Kharagpur
- Prof. Malay Banerjee, IIT Kanpur
- Prof S P Chakraborty, IIT Guwahati
- Prof. N.K. Kumar, BITS Pilani Hyderabad Campus
- Prof. N. Anil, BITS Pilani Hyderabad Campus
- Prof. A. Husain, BML Munjal University

## ORGANIZING COMMITTEE

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Dr. Ganti Ramesh, Math, NIT Silchar  
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Dr. B. H. S. Raju, Math, NIT Silchar
- Convenors: Dr. Pankaj Biswas, Math, NIT Silchar  
Dr. P. K. Gupta, Math, NIT Silchar
- Coordinators: Dr. Wasim Arif, ECE, NIT Silchar  
Dr. Sumit Bowmik, ME, NIT Silchar  
Dr. Sujit Nath, ME, NIT Silchar



## One Week Workshop

on

### Mathematical Modelling using High Performance Numerical Computation

(Under TEQIP – III)

29<sup>th</sup> September – 3<sup>rd</sup> October, 2018

National Institute of Technology Silchar  
Cachar-788010, Assam

### REGISTRATION FORM

1. Name:
2. Designation:
3. Institution/Organisation:
4. Address for communication:
5. E mail:
6. Phone/Mobile No:
7. Highest educational qualification:
8. Paid accommodation required: Yes/No
9. Details of Registration Fee (Attach proof):  
D.D. No.: \_\_\_\_\_ Date: \_\_\_\_\_  
Bank: \_\_\_\_\_  
Place: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of the applicant

Recommendation by HOD (for students)

Signature with seal of HOD

## ABOUT THE INSTITUTE

National Institute of Technology (NIT) Silchar, an Institute of National Importance under the NIT Act was established in 1967 as Regional Engineering College (REC) Silchar in Assam. In year 2002, it was upgraded to the status of an NIT from REC. NIT Silchar is situated on the banks of river Barak and on a sprawling campus spread over 600 acres of land on the outskirts of Silchar. The landscape of NIT Silchar campus is beautiful with natural lakes and hillocks, surrounded by tea gardens. The climate of Silchar during October is very pleasant with normal temperature around 27-30°C and little cloudy. NIT Silchar is a fully residential institution with nine hostels for boys and two hostels for girls. It has six engineering degree offering branches and five non-engineering branches. It conducts various programmes, including organizing the workshops, seminars, conferences, invited talks etc. in collaboration with different academic departments, institutes and reputed multinational and national industries.

## ABOUT THE DEPARTMENT

The Department of Mathematics was established along with the inception of the Institute. Ever since its establishment the Department has been striving to provide quality technical education and imbibe a sense of professionalism in its students. To achieve such high standards it has got an extremely competent faculty and well equipped laboratories. The Department lays special emphasis on research and developmental activities both on the part of the faculty as well as the students.

## REGISTRATION FEES DETAILS

Industry Persons :	Rs. 1000/-
Internal / External Faculty:	Rs. 750/-
External Student :	Rs. 500/-
Internal Student :	Rs. 500/-

The registration fee includes registration kit, working lunch. All participants have to pay the registration fees either via DD in favour of the Director, NIT Silchar, payable at State Bank of India, NIT Silchar branch or online transfer to the account of the Director, NIT Silchar (A/C No. 10521277057, Bank: State Bank of India, Branch: NIT Silchar, IFSC:

SBIN0007061) Brochure and registration form can also be downloaded from the institute website:

<http://www.nits.ac.in/workshops/>

**Submission deadline:** Scanned copy of Registration Form along with D.D. required to be sent via email ([nits.math@gmail.com](mailto:nits.math@gmail.com)) on or before **21<sup>st</sup> September 2018**. The hard copy of original registration form with recommendation by Head and D.D. has to be submitted before the commencement of workshop on 29<sup>th</sup> September 2018 at the registration desk.

## ELIGIBILITY

This program is open to industrial personnel, faculty members, research scholars, PG and UG students of the technical institutions, engineering colleges, polytechnics, universities and other recognized institutions.

## ACCOMMODATION AND TRAVEL

The out station participants will be provided accommodation in the Institute guest house on payment basis (subject to availability). No TA/DA will be paid to the participants.

## HOW TO REACH NIT SILCHAR

The Silchar city is well connected by air, rail and road. Silchar is situated at a road distance of 334 km from Guwahati. NIT campus is about just 10 km away from Silchar railway station and 35 km from Silchar Airport. ([http://www.nits.ac.in/misc\\_docs/Reaching NIT Silchar.pdf](http://www.nits.ac.in/misc_docs/Reaching NIT Silchar.pdf))

## ADDRESS FOR COMMUNICATION

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on  
*Mathematical Modelling using High Performance*

*Numerical Computation*

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### Convenors

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Organized by

**DEPARTMENT OF MATHEMATICS**  
(In association with Electronics & Mechanical Engineering Department)  
**NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR**  
(AN INSTITUTE OF NATIONAL IMPORTANCE)  
SILCHAR, ASSAM-788010, INDIA