

# Training Programme on **DYNAMICAL SYSTEMS: THEORY & APPLICATIONS (DSTA 2017)** May 08-12, 2017



Organized by:  
**Department of Applied Mathematics  
Indian Institute of Technology  
(Indian School of Mines), Dhanbad  
Jharkhand, Pin-826004**

## **Coordinators:**

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## **ABOUT THE INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD**

IIT(ISM) is a fully residential technical institute having all modern amenities located in the mineral-rich belt of India in the city of Dhanbad, Jharkhand. It was established in 1926 on the lines of the Royal School of Mines, London. It is a technical institute of international acclaim offering a host of programmes like B.Tech, M.Tech, M. Sc. Tech., integrated M.Sc., integrated M.Sc. Tech. and MBA. It also offers M. Phil. and Ph.D. programmes, while also awarding D.Sc. The institute admits students through IIT-JEE and GATE/IIT(ISM) Exam in respective programmes.

## **ABOUT THE DEPARTMENT**

The department provides an outstanding research environment complemented by excellent teaching for its students to flourish in different arena of academics and industry as well. It offers academic programs leading to the award of M. Sc. (Mathematics and Computing), Integrated M. Tech. (Mathematics and Computing), M. Phil. (Applied Mathematics) and Ph. D. degree and supporting B.Tech and M.Tech courses of IIT(ISM). The department is executing various sponsored projects received by UGC, CSIR, NBHM, ISRO, DST etc. It is well recognized by the external funding agencies with SAP-DRS provided by UGC and FIST provided by DST. The Society of Applied Mathematics (SAM) was formed in 2009 to promote the academic and research activities.

## **LIST OF POTENTIAL SPEAKERS:**

- **Prof. Soumitro Banerjee, IISER Kolkata**  
( <https://www.youtube.com>,<http://nptel.ac.in>)
- **Prof. Krishna Kumar, IIT Kharagpur**
- **Prof. Nandadulal Bairagi, Jadavpur University, Kolkata**
- **Dr. Malay Banerjee, IIT Kanpur**  
( <https://www.youtube.com>,<http://nptel.ac.in>)
- **Dr. B.S Kushvah, IIT(ISM) Dhanbad**
- **Dr. M.K. Singh, IIT(ISM) Dhanbad**

## ABOUT THE TRAINING PROGRAMME

The dynamical system is an area of mathematics which describes how a mathematical system in a geometrical space evolves with respect to time. The main purpose of this training programme is to provide a basic training of dynamical systems theory for participants, so that they can use various dynamical system tools for their research work and can explore realistic models in details. Participants will be benefited through class room lectures followed by hands-on sessions.

## TOPICS TO BE COVERED

- Basics of Linear and Nonlinear Dynamics
- Stability and Control
- Periodic Orbits, Poincare Maps
- Lyapunov Exponents
- Normalization
- Invariant Manifolds
- Bifurcations, Chaos
- Applications

## ELIGIBILITY FOR PARTICIPATION

Faculty members/Scientists, Research Scholars, UG & PG students and Industrial personnel

## PREREQUISITES

Calculus, Linear algebra, Differential and difference equations; Programming language (preferably FORTRAN/C,C++/MATLAB, GNU Plot/CUDA C/C++, or CUDA FORTRAN)

## COMPUTE LABS

Linux Servers, Workstations with NVIDIA GPUs Tesla Kepler K20, Quadro 6000, GeForce GTX TITAN X(PG600-A04), Generic (Titan X GPU) under NVIDIA GPU Education Centre (GEC):

Awarded in 2014

## ACCOMMODATION

### (a) In Executive Development Centre (EDC) on Payment basis

- @Rs. 400/- per person/day AC room (on sharing basis)
- @Rs. 800/- per person double bed AC room

### (b) In Students Hostel on first come first serve basis

- @Rs. 200/- per person/day

## REGISTRATION

Online registration may be made using link given at IIT (ISM) website.

## Registration Fee

Rs. 5000/-for UG/PG Students & Research Scholars

Rs. 8000/-for Faculties/Scientists

Rs. 10,000/- for Industry Personnels

## MODE OF PAYMENT

- Online Fund Transfer through (Bank/ATM/ RTGS/NEFT etc.)
- DD (in favour of "Registrar, Indian School of Mines", payable at Dhanbad)

## BANK DETAILS

**Name of Bank:** Canara Bank

**Branch Name:** Saraidhela, Dhanbad

**Email:** cb0986@canarabank.com

**A/c No.:** 0986101009746 (Saving Bank A/c)

**Account Holder Name:** Registrar, IIT(ISM), Dhanbad

**IFSC Code:** CNRB0000986

**MICR Code:** 826015003

**REGISTRATION LINK:** <http://goo.gl/forms/p4rYmwclcv>

