



# INDIAN INSTITUTE OF TECHNOLOGY BOMBAY



## NATIONAL PROGRAMME ON DIFFERENTIAL EQUATIONS; THEORY, COMPUTATION & APPLICATIONS

**NPDE-TCA 2016**

(Sponsored by DST)

### ADVANCED LEVEL TRAINING PROGRAMME ON DIFFERENTIAL EQUATIONS

*Venue*

**Birla Institute of Technology & Science, Pilani  
Hyderabad Campus**

**May 25 - June 14, 2016**

IIT Bombay is pleased to announce a three week Advanced Level Training Programme organized by Birla Institute of Technology & Science, Pilani Hyderabad Campus under the auspices of National Programme on Differential Equations; Theory, Computation & Application during May 25 – June 14, 2016.

#### AIM:

- To provide a sound mathematical foundation for research in Applied Mathematics specially in Partial Differential Equations (PDE) and Computational PDEs.
- To create a pool of trained manpower for academic jobs, research and development organizations and industry.
- To expose participants to scientific lab sessions with hands on computing.

#### TARGET AUDIENCE:

Familiarity with PDE, Functional Analysis,  $L^2$  theory and MATLAB will be assumed.

- Final year M. Sc students who will be completing or about to complete and Ph. D. students.
- Post doctoral researchers and young faculty members.
- B. Tech. / B.E. / M. Tech students who have completed NPDE post-graduate level training programme.
- Scientists from industry and research & development organizations with appropriate mathematical background.

#### MAIN TOPICS:

Distribution Theory; Sobolev Spaces; Elliptic PDE: weak solution, Lax-Milgram Lemma, regularity results, weak maximum principle, eigenvalue problems; Heat and Wave Equations: existence, uniqueness etc.; Semigroup theory; First Order Hyperbolic PDEs: Existence of weak solution, entropy solution; Finite Difference/Finite Volume Schemes for First Order Equations; Finite Element Methods for Elliptic and Heat Equations; optimal control for elliptic and heat equation & with hands on computation.

#### TENTATIVE RESOURCE PERSONS:

M. Vanninathan, A. Adimurthi, G.D.V. Gowda, Mythily Ramaswamy (TIFR-CAM, Bangalore); M.T. Nair (IIT Madras); Amiya K. Pani, Neela Nataraj (IIT Bombay); Thirupathi Gudi, A.K. Nandakumaran (IISc, Bangalore); S. Kesavan (IIT Madras)

#### CO-ORDINATORS:

Neela Nataraj and Amiya K. Pani (IIT Bombay); P. Dhanumjaya (BITS, Goa)

#### LOCAL ORGANIZING COMMITTEE:

N. Kishore Kumar, N. Anil, Veerendra Vikram Awasthi, B. Mishra (BITS Hyderabad)

#### PARTICIPATION:

To participate in the workshop, fill in the required form which can be available on the website:

<http://www.npde-tca.math.iitb.ac.in/ATP2016/atp2016.php> and request your Referees to send us your recommendation letter along with your application ID to this email : [npde.atp@gmail.com](mailto:npde.atp@gmail.com)

*Last date of receipt of application: 12<sup>th</sup> April, 2016*

*Selection of participants will be based on their academic records and recommendation letter.*

*List of selected participants will be put on the web page by 14<sup>th</sup> April, 2016*

#### CONTACT :

Prof. Amiya K. Pani, Convener, NPDE-TCA,  
Department of Mathematics, Industrial Mathematics Group,  
IIT Bombay, Powai, Mumbai – 400 076.

**Email: [npde.atp@gmail.com](mailto:npde.atp@gmail.com), Phone: 022-2576 4765**