



# Advanced Optimization Techniques and Hands- on with MATLAB/SCILAB



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**Chairman, Advisory Board, EICT Academy &  
Director MNIT Jaipur**  
Prof. Narayana Prasad Padhy

**Honorary Academic Chair, EICT Academy**  
Prof. V. Sinha

**Chief Investigator, EICT Academy**  
Prof. Vineet Sahula, ECE

**Co- Chief Investigators, EICT Academy**  
Prof. Lava Bhargava, ECE  
Prof. Pilli Emmanuel Shubhakar  
Dr. C. Periasamy, ECE  
Dr. S. J. Nanda, ECE  
Head, ECE (Prof. Lava Bhargava)  
Head, CSE (Prof. D. Gopalani)

## Preamble (Electronics & ICT Academy)

Government of India had announced a National Policy on Skill Development, which has set a target of skilling 500 million people by 2022 in the domain of Electronics & IT. Under the plan scheme of "Digital India Manpower Development". MeitY has set up seven (07) Electronics and ICT Academies as a unit in 03 IITs, 03 NITs and 01 IIIT with an objective of faculty/mentor development/up gradation in the areas related to Electronics & ICT leading ultimately to improved employability of graduates/diploma holders. MNIT Jaipur has set up such an academy for providing specialized training to faculty and industry persons in the states/UTs of Rajasthan, Gujarat, Daman & Diu, Dadra Nagar Haveli.

## (A) Issues-

1. IT Hardware and Electronics Manufacturing industry- availability of properly trained, skilled and qualified manpower
2. Number of quality PhDs generated in IT / Computer Science is very low
3. In E & ICT domain- there is a very high degree of obsolescence of existing technologies and faster emergence of newer technologies

## (B) Approach-

1. A focused faculty training/updation programme for IT, Electronics and related sectors
2. Spreading up and continuous updation regarding Emerging Technology
3. Training and consultancy services for Industry
4. Design, Develop and Deliver specialized modules for specific research areas and Industry
5. Providing advice and support for technical incubation and entrepreneurial activities

An intensive two-week online training programme is being organized for faculty of engineering and technological institutions. It is also open to persons from industry and doctoral students of Indian organizations. The main theme of training program will be oriented around exploring the state of the art methods for advanced optimization techniques with MATLAB/SCILAB.

## Experts/Speakers-

- 1) Prof. Ganapati Panda, Former Dy. Director, IIT Bhubaneswar
- 2) Prof. Bijay Ketan Panigrahi, Dept. of Electrical Engineering, IIT Delhi
- 3) Prof. Kusum Deep, Dept. of Mathematics, IIT Roorkee
- 4) Dr. Swagatam Das, Electronics & Comm. Unit, ISI Kolkata
- 5) Dr. Pyari M. Pradhan, Dept. of Electronics & Comm., IIT Roorkee
- 6) Dr. Sriparna Saha, Dept. of Computer Science and Engineering, IIT Patna
- 7) Dr. Nithin V. George, Dept. of Electrical Engineering, IIT Gandhinagar
- 8) Dr. Jagdish C. Bansal, Dept. of Math., South Asian University, New Delhi
- 9) Dr. Ajit Ku. Sahoo, Dept. of Electronics & Comm. Engg., NIT Rourkela
- 10) Dr. Vasundhara, Dept. of Electronics & Comm. Engg., NIT Warangal
- 11) Dr. Jyoti Prakash Singh, Dept. Of Computer Science & Engg., NIT Patna
- 12) Dr. Trilochan Panigrahi, Dept. of Electronics & Comm., NIT GOA
- 13) Dr Prashant K. Jain, Dept. of Mechanical Engg., IIITDM Jabalpur
- 14) Dr. Anil Kumar, Dept. of Electronics & Comm., IIITDM Jabalpur
- 15) Dr. Sitanshu S. Sahu, Dept. of ECE, Birla Institute of Technology, Mesra
- 16) Dr. Arnapurna Panda, Center for Data Sci., Sikshya O Anusandhan Univ.
- 17) Dr. Rachana Gupta, Data Scientist, GROWEXX
- 18) Ms. Rashi Gupta, Post Graduate Engineer, Sterlite Technologies Limited
- 19) Dr. Urvashi Prakash Shukla, Dept. of CSE, Banasthali Vidyapith
- 20) Dr. Rahul Kumar Vijay, Dept. of Computer Science, Banasthali Vidyapith
- 21) Dr. Dinesh Kumar Kotary, Dept. of ECE, IET, Lucknow

Experts from MNIT Jaipur

## Programme Modules:

**Module 1: Fundamental of Optimization:** Classical Optimization techniques, Constrained Optimization, Linear and Nonlinear Optimization, Alternating direction multiplier method (ADMM).

**Module 2: Nature Inspired Optimization:** Genetic Algorithms, Particle Swarm Optimization, Ant Colony Optimization, Cuckoo Search, Colliding Bodies Opt., Symbiotic Organism Search, Social Spider Opt., Artificial Bee Colony, Differential Evolution, Gray Wolf Optimization, CLONAL and other Bio-inspired Algorithms, Comparing Nature Inspired Optimizers, Open Problems.

**Module 3: Multi & Many Objective Optimization (MOO):** Nondominated Sorted Genetic Algorithm NSGA-II & NSGA-III, MOO for Clustering, Cognitive Radio, Sensor Networks, Multi task Optimization, Dynamic Optimization.

**Module 4: Real Life Applications:** Wireless Sensor Network, Nonlinear System Identification, Data Clustering, Active Noise Control, Bio informatics, Signal Processing, Hyperspectral Image Processing, Many Other Applications

## Programme Coordinator:

Dr. Satyasai. J. Nanda [sjnanda.ece@mnit.ac.in](mailto:sjnanda.ece@mnit.ac.in) 9549654237 (M)  
Dr. Ila Sharma [ila.ece@mnit.ac.in](mailto:ila.ece@mnit.ac.in) 9549650769 (M)

## Registration:

Registration is open to faculty, industry persons, doctoral, postgraduate and graduate students. Participants will be admitted on first-come first-served basis. Register on line at - [http://www.mnit.ac.in/eict/acad\\_training\\_prg.php](http://www.mnit.ac.in/eict/acad_training_prg.php)

## Certification Fee:

Academic (student/faculty): 500/-, Industry/Others: 1000/-  
(A) Fee once paid will not be refunded back; it would be adjusted in future.  
(B) The fee covers online participation in the programme, tutorial notes and examination, certification charges.  
(C) The organizers should receive the registration amount through online payment gateway provided at the registration portal.  
(D) For modules details, see separate sheet attached.  
→ For any other query, email us at [academy@mnit.ac.in](mailto:academy@mnit.ac.in)