

## ABOUT MNIT

Malaviya National Institute of Technology (MNIT) Jaipur is one of the NITs established by Ministry of Human Resource Development, Government of India. The Institute, earlier known as MREC, was established in 1963 as a joint venture of the state and central Governments. Later in 2002, the college was given the status of National Institute of Technology and on August 15, 2007, proclaimed Institute of National Importance through Act of Parliament. MNIT campus spreads over 325 acres of lush green area in the prime location of Jaipur city. At present, in addition to research, consultancy and developmental activities, the Institute offers UG and PG (M. Tech./M.Sc. & Ph.D.) level courses to about 5000 students in almost all leading fields of engineering, technology, management and sciences.



## DEPARTMENT OF ELECTRICAL ENGINEERING

The Electrical Engineering Department is one of the oldest departments of the institute which was established in the year 1963. At present, the department offers undergraduate courses in Electrical Engineering along with postgraduate courses in Power System, Power Electronics & Drives and Power Systems Management. The department has undertaken a number of research projects/schemes with the financial assistance from AICTE, DST and MHRD, including international collaborative research projects.

## ABOUT WORKSHOP

The workshop is designed for understanding and implementing advanced optimization techniques in different fields. The application of these techniques is quite broad including area of engineering, business and medicine. It is important for engineering UG/PG students and faculties to gain a hands-on experience in implementing the advanced optimization techniques on different projects. This workshop will include lectures and hands-on lab sessions for the participants to know in-depth theoretical concepts of different advanced optimization techniques and their programming implementation in MATLAB and Python.

### PATRON

**Prof. N P Padhy**  
Director, MNIT Jaipur

### CONVENER

**Prof. Harpal Tiwari**  
Professor & Head  
Department of Electrical Engg., MNIT Jaipur

### COORDINATORS

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## IMPORTANT DATES

Last Date of Registration	14 Dec 2023
Confirmation of Selection	16 Dec 2023
Workshop Start Date	18 Dec 2023

## Malaviya National Institute of Technology Jaipur

announces

## Workshop (Hybrid Mode) under Diamond Jubilee Celebrations on Advanced Optimization Techniques

during  
**Dec 18-22, 2023**

Organized by

Robotics and Machine Analytics (RAMAN) Lab  
Department of Electrical Engineering,  
Malaviya National Institute of Technology  
Jaipur, Rajasthan-302017, India  
[www.mnit.ac.in](http://www.mnit.ac.in)

**REGISTRATION FROM**  
**Advanced Optimization Techniques**  
(Dec 18-22, 2023)

Name:.....  
Category (Student: UG, PG, PhD/Faculty):.....  
Specialization For PG/Faculty only):.....  
Department, Semester:.....  
Institute:.....  
Mailing Address:.....  
Mobile:.....  
Email:.....  
Accommodation Required: (Yes/No):

**Registration fee Details:**

Mode of payment (NEFT/IMPS): .....  
Transaction No: .....  
Amount Paid: .....

The above-mentioned information is accurate to the best of my knowledge at the time of completion of the form. If selected, I agree to abide by the rules and regulations of the program and MNIT Jaipur.

Date: \_\_\_\_\_ Signature of Applicant  
The applicant is permitted to participate in the above program from the mentioned duration.

Date: \_\_\_\_\_ Signature of Sponsoring Authority with seal

**COURSE CONTENTS**

- ❖ **Introduction:** Optimization fundamentals, Classical Optimization, Advanced Optimization, MATLAB and Python for Optimization.
- ❖ **Linear Optimization:** Unconstrained and Constrained Optimization, Linear Programming, Graphical Method, Symmetric Dual Problems, Simplex Method, Derivative based-Optimization, Newton's Method, Least Mean Square Method. Quadratic Programming and Network Optimization.
- ❖ **Non-Linear Optimization:** Non-Linear Optimization, Mixed Integer Non-Linear Programming.
- ❖ **Search-Based Optimization:** Breadth First Search, Uniform Cost Search, Depth First Search, Depth Limited Search, Iterative deepening depth-first search, Bidirectional Search, Best Search First.
- ❖ **Metaheuristic Optimization:** Evolutionary-Based Optimization Algorithms (Genetic Algorithm, Differential Evolution Algorithm), Swarm-Based Optimization Algorithms (Particle Swarm Optimization, Gray Wolf Optimization, Ant Colony Optimization, Whale Optimization), Physics-Based Optimization Algorithms (Simulated Annealing, Multi-verse Optimization), Human-Based Optimization Algorithms (Teaching Learning Based Optimization, Teamwork Optimization), Music-Based Optimization Algorithms (Harmonic Search Algorithm), Math-Based Optimization Algorithms (Arithmetic Optimization Algorithm, Sine Cosine Algorithm, Gradient Based Optimizer).
- ❖ **Hands-on with MATLAB and Python.**

**WORKSHOP APPLICATION PROCESS**

Applications are advised to follow the given instructions while registering.

**REGISTRATION FEES**

- |                   |            |
|-------------------|------------|
| ❖ UG              | Rs. 500/-  |
| ❖ PG/PhD students | Rs. 750/-  |
| ❖ Faculty         | Rs. 1500/- |
| ❖ Industry        | Rs. 2000/- |

**Note: The registration fee excludes 18 % GST.**

**PAYMENT MODE**

**NEFT/IMPS:**

**Name: Registrar (Sponsored Research) MNIT**

**Account No.: 676801700388**

**IFSC CODE: ICIC0006768 (ICICI BANK, MNIT)**

**REGISTRATION FORM DETAILS**

After fee submission, the applicant must register themselves by submitting details on [Google Form Link](#). Further details for workshop and instructions for filling the form may be found on [Raman Lab Website](#).

The applicant may also mail the filled registration form (given below) with the appropriate requirements to the address of correspondence mentioned.

All registration forms must be received by 14 Dec, 2023. Registration fee is non-refundable.

The selection for the workshop will be on 'first come first served' basis. The confirmation of the selection to attend the course will be emailed by the mentioned date.

For further details about the course, contact [ravita.ee@mnit.ac.in](mailto:ravita.ee@mnit.ac.in)

**ADDRESS FOR CORRESPONDENCE**

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