MALAVIYA MISSION TEACHER TRAINING CENTRE IIITDM Kancheepuram

Refresher Course on Machine Learning and Optimization Techniques

Date:
March 16 to 28, 2026

Mode:
Offline

Registration fees - Nil

About MMTTC:

The Malaviya Mission Teacher Training Center (MMTTC) at IIITDM Kancheepuram is funded by the Ministry of Education (MoE) under the Malaviya Mission Teacher Training Programme. The mission aims to transform higher education by integrating Indian values and ethos into teaching, research, publications, patents, and institutional development. Established as one among the 116 centers in the country, the MMTTC at IIITDM Kancheepuram focuses on design and manufacturing education. It develops e-learning materials, low-cost laboratory instruction modules, and innovative projects for students and teachers.
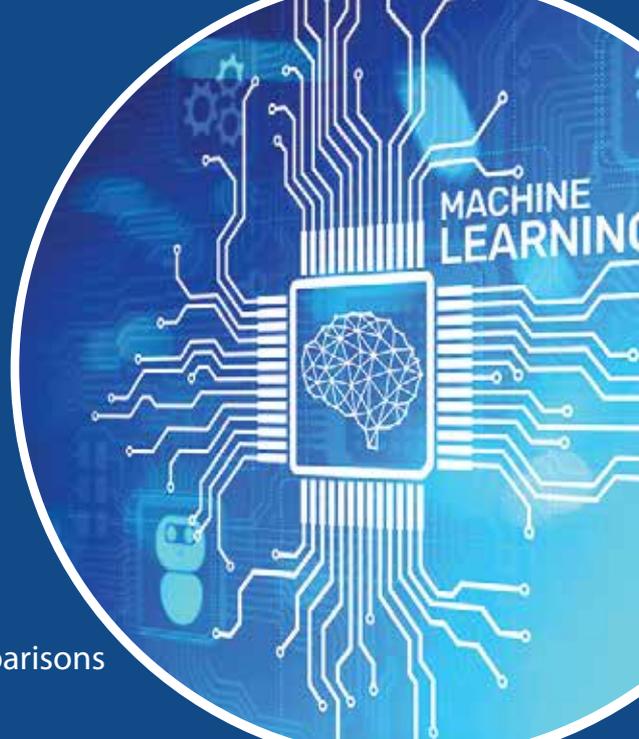
About the programme:

This Refresher Course on "Machine Learning and Optimization Techniques" aims to empower participants with updated, practical expertise in rapidly evolving data science domains. By revisiting foundational concepts in supervised, unsupervised, and reinforcement learning alongside classical and modern optimization frameworks such as gradient descent variants, convex analysis, stochastic methods, and constrained optimization the course bridges theoretical rigor with hands-on implementation using tools like Python, scikit-learn, TensorFlow, and PyTorch. Participants will strengthen their ability to design efficient ML pipelines, tune hyperparameters, evaluate model robustness, and address real-world challenges. The course emphasizes emerging trends including deep learning architectures, automated machine learning, explainable AI, and robust optimization, ensuring relevance in industry and academia. Through case studies, and hands on sessions, participants will refine problem-formulation skills, mitigate biases, enhance model interpretability, and adopt ethical deployment practices. Ultimately, the course equips attendees to confidently apply cutting-edge techniques to complex, data-driven problems, fostering innovation and performance excellence in an AI-driven era.

Topics covered:

- Introduction to Machine Learning
- Supervised Learning and Model Evaluation
- Unsupervised Learning and Dimensionality Reduction
- Reinforcement Learning Fundamentals
- Deep Learning and Generative Models
- Emerging Topics and Practical Applications
- ntroduction to optimization problems
- Combinatorial optimization
- Optimization for Machine Learning
- Deep Learning optimization techniques
- Multi-objective optimization and real-world applications
- Hands-on Implementation of ML models using Python
- Hands-on Optimization case studies and algorithm comparisons

Registration:

1. Register and login as a participant in mmc.ugc.ac.in
2. In the dashboard click on "Apply for Other Programmes"
3. Select Apply for "Refresher Course" and from the dropdown select the Programme Name and Center Name as "Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram (16/03/2026- 28/03/2026)"
4. Choose the title "Machine Learning and Optimization Techniques." from the dropdown menu and enter the remaining personal information including year of joining, total years of experience etc.
5. Upload the NOC on Institute/College/University letterhead as per the format provided in https://docs.google.com/document/d/1o1QNURKaYJod7uuqmKtmu2RgXGBRoo0o/edit?usp=sharing&ouid=115411563109741780255&rtpof=true&sd=true
6. Click on Submit to complete the registration process.

Resource Persons :

The course content will be delivered from a pool of resource persons from leading prestigious academic institutions, research labs and industry.

Eligibility:

- Faculty members working in universities and colleges that are included under Section 2(f) of the UGC Act are eligible to attend RC.
- This programme shall be taken into consideration for fulfillment of the requirements as laid down in Career Advancement Scheme as per UGC Regulations.

◎ **Free registration including food for all selected participants.**
◎ **Free accommodation for limited number of participants on first-come-first-serve basis.**

Coordinators :

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