



MATHEMATICS TRAINING AND TALENT SEARCH (MTTS) TRUST

Nurturing mathematical talent since 1993

ONLINE WEEKEND COURSE · 8 SESSIONS

A GATEWAY TO ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Linear Algebra: Powering Modern AI & ML

An eight-session online weekend course exploring the mathematical foundations of modern Artificial Intelligence and Machine Learning — each session pairs a 75-minute MTTS-style interactive lecture with a 45-minute hands-on Python session.

Instructor: **Dr. Swanand Khare** · IIT Kharagpur

Why this course?

Linear Algebra is one of the foundational subjects on which modern machine learning heavily relies. High-dimensional data such as images, video and text embeddings are represented as matrices and vectors, and linear transformations drive feature representation as weight matrices multiply inputs in a neural network's hidden layers. Linear regression solves overdetermined systems in the least-squares sense, while eigenvalue–eigenvector decomposition and the SVD of the data matrix enable lower-dimensional representations for efficient computation. Low-rank approximations even pave the way for LoRA updates of deep networks under streaming data. This course familiarizes participants with these concepts and computational techniques and demonstrates their use in AI and ML applications.

Who can apply?

- Students pursuing undergraduate studies (6th semester onwards) or higher studies in Mathematics and allied areas.
- Teachers teaching Mathematics and allied subjects at the undergraduate or postgraduate level.
- Seats are limited; selection is based on eligibility and the number of applications received.

Prerequisite: A first course in Linear Algebra. Familiarity with Python is desirable but not mandatory — an introductory session on matrix computations in Python opens the course.

Course Highlights

Mode	Online
Duration	8 Sessions
Schedule	Weekends
Each session	75 min lecture + 45 min Python
Commences	Sep 12, 2026
Registration	Compulsory

Important Dates

Applications open	Aug 01, 2026
Applications close	Aug 22, 2026
Selection list	Aug 31, 2026
Course begins	Sep 12, 2026

NO REGISTRATION FEE

COURSE COORDINATOR

Dr. Prashantkumar Patel

Dept. of Mathematics, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India



Apply Online · Aug 1–22, 2026

mtts.org.in/programme/26ocla01

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