



Indian Institute of Science  
Centre for Continuing Education

Proficiency Course May-July-2026



# Machine Learning for 6G wireless communication

**Course Coordinator - Prof. Sudhan Majhi**

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**Minimum Qualification :**

BE/B Tech ME/M Tech and Phd relevant discipline  
(4th year BE/B Tech also Eligible)

**Prerequisite:** Wireless Communication and basic of python

**Course Fee per participant:**

**Course Fee : INR 20000+18% GST**

**Application Fee: INR 300 +18% GST**

**Total Amount : INR 23,954/-**



**Course Schedule**

**Date: 4th May to 29th July 2026**

**Monday and Wednesday 8 PM to 9:30 PM**

**Mode: Online**

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## Course Content:

AI/ML has several applications in physical layer communication. It brings adaptiveness to the transmitter as well as the receiver and improves the performance and latency of the communication system. The 3GPP standards already adopted AI/ML as a study material for 6G wireless communications. 6G AI Native radio also requires a solid knowledge of AI/ML for wireless communication; having this knowledge may help them find a job in these companies.

## Syllabus:

- **Introduction to Python:** Basic of Python programming
- **Introduction to Machine Learning:** Overview of supervised, semi-supervised and unsupervised, Regression Model, SVM, KNN, CNN, DNN, RNN, LSTM, Transfer learning.
- **Introduction to Wireless Communication:** Python code on Single carrier system, OFDM, MIMO, OTFS system
- **Wireless Communications:** LDPC code decoding, Modulation classification, channel estimation, CSI compression and feedback (based on 3GPP Standard), Beamforming and beam Management (based on 3GPP Standard), PAPR reduction, and Spectrum sensing.
- **Signal Estimation and Detection:** AI/ML based Parameter estimation, IF estimation, symbol rate estimation, STO and CFO estimation.
- **Resource allocation:** Resource allocation, Spectrum sharing, Power allocation.

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## Contact us

Centre for Continuing Education

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