



# MMTTC IIITDM KANCHEEPURAM Short Term Programme

## Future of Semiconductor Devices with Neuromorphic Computing

### 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.

**Registration Fees:**

**NIL**



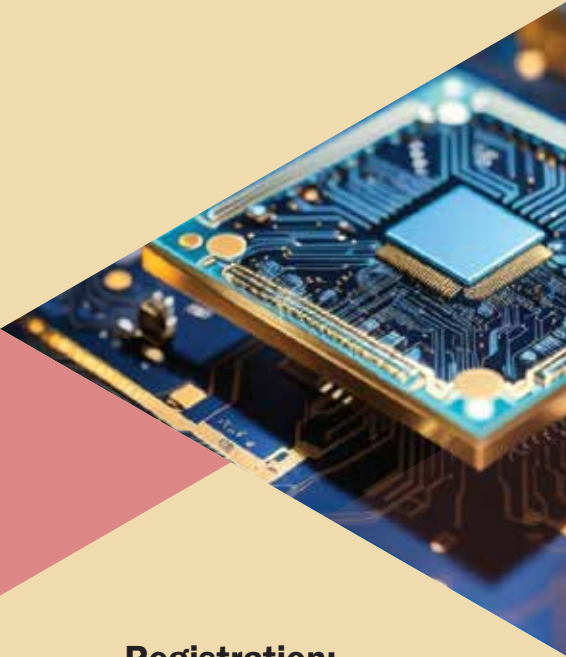
**Online**

**6<sup>th</sup> to 11<sup>th</sup> January 2025.**



## About the Programme :



Neuromorphic computing is the way to understand and model the biological behavior of the human brain to carry out brain-like computations. Numerous efforts are being undertaken for hardware implementations of devices, circuits and systems that can mimic the computations of the human brain, thereby leading to energy-efficient neuromorphic systems. The primitives of a neuromorphic hardware comprise of neurons and synapses that are inspired from their biological counterparts. The short-term training program is intended to understand and implement the device-based neurons and synapses with energy efficiency.



### Topics covered:

- Introduction to Biological aspects of the human brain
- Importance of the non von-Neumann architecture
- Artificial neurons and synapses
- Circuit-based implementation for the artificial neuron
- Emerging devices (1-Transistor) implementation of the neuron
- Various neuron models available
- Hands-on the required tools to implement the artificial neurons
- TCAD, Cadence, Vivado, Python, etc. tools
- Interactive lab demonstration sessions
- Spiking Neural Network (SNN) implementation

### Registration:

1. Register at [mmc.ugc.ac.in](http://mmc.ugc.ac.in) and login using your credentials. 
2. Complete your profile and upload your photo & Institute ID card.
3. In the dashboard click on "Apply for other programmes"
4. Select Apply for "Short Term Programme" and from the dropdown select the Programme Name and Center Name as "Indian Information of Information Technology, Design and Manufacturing, Kancheepuram (06/01/2025 - 11/01/2025)"
5. Choose the title from the dropdown menu and enter the remaining personal information including year of joining, total years of experience etc.
6. Upload the NOC on Institute/College/University letterhead as per the format provided [here](#) 
7. Click on Submit to complete the registration process.
8. Application Deadline: January 3rd, 2025.



### Resource Persons :

The course content will be delivered from a pool of resource persons 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 STP.

This programme shall be taken into consideration for fulfillment of the requirements as laid down in Career Advancement Scheme as per UGC Regulations.

### Coordinator :

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