Summary Report
Faculty Development Program on High Performance Computing & AI
Date: 23-28 June 2025
Organized by: Department of Computer Engineering, VIT, Pune
In Association With: C-DAC Pune & NSM Nodal Center, Walchand College of Engineering, Sangli
Sponsored by: National Supercomputing Mission

Objective
To provide faculty members with comprehensive exposure to High Performance Computing (HPC) and Artificial Intelligence (AI), through expert lectures, hands-on sessions, and interdisciplinary discussions.

Our Patron
Dr. U. A. Dabade, Director WCE, Sangli,
Mr. Ashish Kuvelkar, Senior Director, CDAC Pune
Prof.(Dr.) Rajesh Jalnekar, Director, VIT Pune

Convenor
Prof. (Dr.) D. B. Kulkarni, WCE Sangli (Head, NSM Nodal Centre WCE Sangli)

Prof.(Dr.) S.R.Shinde, VIT Pune(Head, Department of Computer Engineering)

Coordinator
Dr. M.A. Shah, Associate Professor & Dean CAS, WCE Sangli.
Dr.K.V.Thopate, Associate Professor, VIT Pune.
Dr.S.A.Phatangare, Assistant Professor, VIT Pune

Organizing committee
Dr. Arati Deshpande, VIT Pune

Dr. Shailaja Uke, VIT Pune

Mrs. Smita Mande

Topics Covered

- Understanding Multicore and Manycore Architectures

- Shared Memory Parallelism with OpenMP

- Message Passing Interface (MPI) for Distributed Systems

- CUDA Programming for GPU-based Computing

- Parallel Computing Patterns (Reduction, Matrix Multiplication, Convolution)

- Profiling Techniques for Sequential and Parallel Code

- Performance Measurement and Optimization

- Integration of HPC in AI, ML, and Deep Learning

Event Highlights

Inauguration & Dignitary Insights (Day 1)

Day-wise schedule and speakers with session topics and hands-on sessions were meticulously planned. Refer to attached schedule for complete session-wise details.**Program Highlights with Speaker Details**

Day 1 – Monday, 23rd June 2025

- **Inaugural Session**:
    - **Inauguration Ceremony**
    - **Speakers: Dr. M. A. Shah and Ms. A. S. Pawar (WCE, Sangli)**
    - **Session 1: Introduction to HPC and Performance Metrics**
    - **Session 2: HPC and AI by Mr. Shailesh Patil (WCE, Sangli)**.

Day 2: Tuesday, 24th June 2025

- *Session 1:* HPC for NLP and Industry 4.0 — Ms. A. A. Pawde (WCE, Sangli)

- *Session 2:* Parallel Programming with OpenMP — Dr. Pramod Bhide (SPIT, Mumbai)

- *Lab:* Hands-on with OpenMP — Dr. Pramod Bhide.

Day 3 – Wednesday, 25th June 2025

   - Session 1: Introduction to MPI — Dr. Harshad Wadkar (Cummins College, Pune)
   - Lab: Hands-on with MPI Programming.

Day 4 – Thursday, 26th June 2025

- *Session 1:* HPC and AI Applications — Dr. Rutal Mahajan (Utica University, NY, USA)

- *Session 2:* Case Study in HPC & AI

- *Session 3:* Introduction to CUDA Programming — Dr. Amit Joshi (COEP Pune)

Day 5 – Friday, 27th June 2025

- *Session 1:* Advanced HPC Techniques — Dr. Shitala Prasad (IIT Goa)

- *Session 2:* Parallel Computing and Algorithms — Dr. Milind Kulkarni (VIT, Pune)

- *Session 3:* Performance Metrics in HPC — Dr. Amit Joshi (COEP Pune)

Day 6 – Saturday, 28th June 2025

- *Session:* Industry Certification Module on CUDA Programming — Dr. Nilesh Pikle (IIIT Nagpur)

- *Closing Ceremony:* Valedictory Function

Resource Persons and Speakers

- Dr. Shitala Prasad — IIT Goa

- Dr. Pramod Bhide — SPIT, Mumbai

- Dr. Milind Kulkarni — VIT Pune

- Dr. Amit Joshi — COEP Pune

- Dr. Rutal Mahajan — Utica University, NY, USA

- Dr. Nilesh Pikle — IIIT Nagpur

- Dr. Harshad Wadkar — Cummins College of Engineering for Women

- Ms. A. A. Pawde, Ms. A. S. Pawar, Mr. Shailesh Patil — WCE Sangli

Photo Gallery