



FDP Sponsored by National  
Supercomputing Mission (GOI)

## High Performance Computing and AI



### National Supercomputing Mission Sponsored Faculty Development Program on **"High Performance Computing & AI"**.

Organised by,  
Department of Computer Engineering, Yashwantrao  
Bhonsale Institute of Technology, Sawantwadi  
&  
Walchand College of Engineering, Sangli.

*Under the aegis of National Supercomputing  
Mission, Government of India, In association with  
CDAC, Pune.*

**Dates: 26,27,28 May (Online) and 29,30,31  
May (Offline) 2025**

#### Our Patrons:

Shri. Achyut Sawant Bhonsale, Exec. Chairman, Yashwantrao  
Bhonsale Education Society, Sawantwadi.  
Prof. (Dr.) U. A. Dabade, Director WCE, Sangli.  
Shri. Amol Chavan, Member, Admin. Council, WCE, Sangli.  
Mr. Ashish Kuvelkar, Scientist 'G', CDAC, Pune

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

Coordinators: Dr. U.B. Chavan, WCE, Sangli.  
Dr. Raman R. Bane, YBIT, Sawantwadi.

#### About Host Institute

Located in the green and peaceful region of Konkan, Sindhudurg district, Maharashtra, Yashwantrao Bhonsale Institute of Technology (YBIT), Sawantwadi, offers a calm environment for technical education. Established in 2014 under the aegis of Shri Yashwantrao Bhonsale Education Society (SYBES), YBIT is located about 2.5 kilometers from Sawantwadi City, providing a peaceful environment for focused learning and academic excellence. The Institute boasts a sprawling 8.5-acre campus with state-of-the-art infrastructure. YBIT initially offered diploma programs in Civil, Mechanical, Electrical, and Computer Engineering, all accredited by NBA in 2019 and reaccredited in 2022, reflecting its commitment to quality education. In 2023–24, the institute expanded its offerings to degree-level programs in the same engineering disciplines, affiliated with the University of Mumbai and approved by AICTE, New Delhi and DTE. YBIT's mission is to nurture rural talent through technical education, emphasizing holistic development and lifelong learning. With dedicated faculty and a focus on practical skills, the institute aims to equip students with knowledge and competencies to excel in engineering and contribute meaningfully to society by applying their skills.

#### About Course

The program will introduce several parallel programming models, including Open Multiprocessing (OpenMP) for shared memory machines, Message Passing Interface (MPI) for distributed memory machines, and Compute Unified Device Architecture (CUDA), a parallel computing platform developed by NVIDIA for exploiting GPU. It will also include hands-on practice on these programming models. It is primarily intended for professors who presently teach or plan to teach HPC-related courses. Researchers who use or plan to use parallel programming are also welcome to attend. The program will also cover the role of High-Performance Computing (HPC) in AI, including how parallel programming accelerates deeplearning and large-scale AI model training.

### About collaborators

Centre for Development of Advanced Computing (C-DAC) is implementing the National Super-computing Mission (NSM), a capacity building initiative of Ministry of Electronics and Information Technology (MeitY), Government of India.

Walchand College of Engineering, Sangli (WCE), established in 1947 with the lavish campus having state-of-the-art laboratories. WCE is one of the nodal center for conducting NSM activities. WCE is a state government aided oldest and autonomous premiere engineering institute in Maharashtra with a beautiful campus of over 90 acres. WCE offers UG, PG and PhD programs in engineering education. The institute has strong collaborations with premier R&D organizations and industries.

### Course Objectives

- To introduce the fundamentals of parallel computing including parallel architectures, programming models and commonly used parallel programming constructs/libraries/languages.
- To deliver hands-on sessions to provide experience applying HPC tools on both CPU and GPU platforms.
- To educate faculties on Integrating HPC course into the curriculum.

### Course Contents

- Understanding Multicore and Manycore architectures
- Shared Memory Parallelism with OpenMP
- CUDA Programming
- Distributed Memory Parallelism with MPI
- Parallel Computing Patterns: Reduction, Matrix multiplication, convolution etc.
- Profiling sequential and parallel codes
- Performance measures in Parallel Computing, HPC

### Target Audience

The workshop is open for all faculty members, research scholars working in CSE, IT and Electronics Departments in Universities and Engineering Colleges in Mumbai, Konkan, Kolhapur region of Maharashtra, Belagavi and Goa. Preference will be given to the applicants from nearby institutes of YBIT, Sawantwadi. The registration is on a 'first come first serve' basis.

### Important Dates

**Registration Open:** 8<sup>th</sup> May 2025

**Last Date of Registration:** 20<sup>th</sup> May 2025

**Course Duration:** 26,27,28 May (Online) and 29,30,31 May (Offline) 2025

**Mode : Offline** from 9:00 AM to 11:00 AM  
(at YBIT) 11.15 AM to 01.15 PM

2.30 PM to 4.30 PM

**Online** from 9:00 AM to 11:00 AM

11.15 AM to 01.15 PM

2.30 PM to 4.30 PM

**Registration Fees: No registration fees, Refundable**  
**Deposit: Rs. 500/- for the shortlisted candidates,**

**Registration Link and QR Code:**

<https://forms.gle/z4bxUQzMLrzvmPJE8>



### Program benefits

- Interaction with eminent speakers from industry and academia
- nVIDIA Industry certifications of worth ~21,000/-
- **FREE** Access to HPC resources during the FDP.
- Travelling Fare (max Rs. 2000), Food and accommodation will be provided in campus during offline sessions

### Organizing Team and Speakers

Dr. R.K Joshi, Professor, CSE Dept., IIT Bombay  
Dr. Sharad Sinha, Associate Professor, CSE Dept., IIT Goa  
Mr. Ashish Kuvarkar, Scientist 'G' CDAC, Pune  
Mrs. Shweta Das, Scientist 'C' CDAC, Pune  
Dr. Shitala Prasad, Assistant Professor, CSE Dept., IIT Goa  
Dr. D. B. Kulkarni, Head, NSM Nodal Centre WCE Sangli.  
Dr. Umesh Chavan, IT Dept., WCE, Sangli.  
Mrs. Aprupa Pawar, CSE Dept., WCE, Sangli.  
Dr. Sudhir Dhage, Dean- Admin & IQAC, S.P.I.T., Mumbai  
Dr. Raman R.Bane, Principal, YBIT, Sawantwadi  
Dr. Amit Joshi, Assistant Professor, CSE Dept., COEP, Pune  
Dr. Nilesh Pikale, IIIT, Nagpur.  
Dr. Karveer B. Manwade, Belagavi (KS)  
Mr. Himanshu Sharma, Scientist 'C' CDAC, Pune.

### Institute Level Support Team

- Mr.M.S.Khadilkar
- Mrs.Naik S.S.
- Mrs.Dhamne P.C.
- Mrs.Naik H.D.
- Mr.Prabhu S.G.
- Mr.Sawant V.R.
- Mrs.Jamsandekar M.J.
- Mrs.Sawant S.M.

### Contact Details

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