

Report on A One Day Workshop on High Performance Computing (HPC)

1. Description of Workshop

This one-day workshop on “High Performance Computing” was organized by Department of EIE, VRSEC during 28th October 2022 sponsored by Siddhartha Academy of General and Technical Education.

High-performance computing (HPC) is a technology that harnesses the power of supercomputers or computer clusters to solve complex problems requiring massive computation.

HPC lets users process large amounts of data quicker than a standard computer, leading to faster insights and giving organizations the ability to stay ahead of the competition. HPC solutions can be one million times more powerful than the fastest laptop. This power allows enterprises to run large analytical computations, such as millions of scenarios that use up to terabytes (TBs) of data.

High Performance Computing Systems, is optimum solution for engineering structure designing, building designing, designing of cars, vessels and aircrafts, designing of electronic and semiconductive devices, computational fluid dynamics (CFD), modelling of atmosphere and World ocean, weather forecasts, geological surveys, various mathematical physics tasks, astrophysics and space research, molecular sciences, genetics, modelling in medicine, including ASPDC, development of drugs, parallel DBMS, electronic commerce and information systems, virtual reality and visualization, image processing, nuclear power energetics, military tasks, training complexes, on-board, integrated systems, real-time systems, financial analysis, stock machines, etc.

1.1 Objectives

This workshop covers fundamentals of high-performance computing, HPC architectures and GPU computing environments.

1.2 Methodology

An organizing committee under the following constituted to make the training programme more successful: -

Co-Ordinator's

Mr. V N Prudhvi Raj, Assoc. Prof.
Mr. M Srinivas, Assistant Prof.

Department Organizing Committee

Mr. P Durga Prasadarao, Asst. Prof
Mrs. Ch. Jayalakshmi, Asst.Prof

1.3 Resource Persons

The workshop was carried out by the resource person **Dr. A Praveen Kumar**, Mahindra University, Hyderabad.

1.4 Participants

Participants are Faculty members and students of VR Siddhartha Engineering College.

2. Structure of the Workshop

The workshop was consisted of four number of sessions.

Sl.No.	Timing	Content Covered
1	9:00 A.M to 11:00 A.M	Why do we need HPC concepts, Issues with Multithreading, HPC architectures.
2	11:15 A.M to 01:15 P.M	Role of synchronization Primitives, Design of synchronization Primitives, Different synchronization techniques.
3	2:00 P.M to 3:30 P.M	Need for concurrent data structures, Design of concurrent data structures.
4	3:45 P.M to 5:30 P.M	HPC architectures, Performance measures

3. Feedback from the participants

- Extension of the duration of the programme is needed.
- Hands on GPU programming is needed.
- Helps in writing program for parallel computing.

Date: 05-11-2022

(Dr.G.N.Swamy)
Assistant Professor
EIE Department