**Session 2025-2026**

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| **Vision:** To help businesses uncover crucial  insights | **Mission:** To be a good data scientist |

**Program Educational Objectives of the program (PEO):** (broad statements that describe the professional and career accomplishments)

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| PEO1 | **Preparation** | **P: Preparation** | **Pep-CL abbreviation**  **pronounce as Pep-si-lL easy to recall** |
| PEO2 | **Core Competence** | **E: Environment (Learning Environment)** |
| PEO3 | **Breadth** | **P: Professionalism** |
| PEO4 | **Professionalism** | **C: Core Competence** |
| PEO5 | **Learning Environment** | **L: Breadth (Learning in diverse areas)** |

**Program Outcomes (PO):** 1. Understand and Apply Parallel Programming Concepts

2. Analyse and Improve Program Performance.

3. Demonstrate Practical Skills in HPC Tools and Environments.

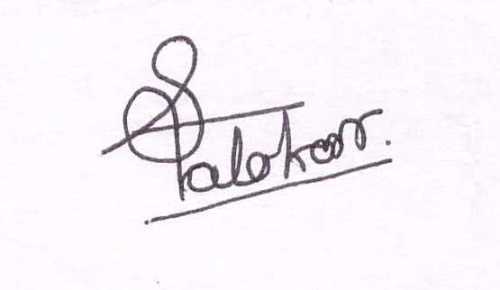
**Keywords of POs:**

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

**PSO Keywords:** Cutting edge technologies, Research

“I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life.” *to contribute to the development of cutting-edge technologies and Research*.

**Integrity:** I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

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Shantnu Anant Talokar

**Name and Signature of Student**

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| **Session** | **2025-26 (ODD)** | | **Course Name** | **HPC Lab** | |
| **Semester** | **7** | | **Course Code** | 22ADS706 | |
| **Roll No** | 59 | | **Name of Student** | Shantnu Talokar | |
|  |  | |  |  |  |
| Practical Number | | 1 | | | |
| Course Outcome | | 1. Understand and Apply Parallel Programming Concepts 2. Analyse and Improve Program Performance | | | |
| Aim | | Introduction to Linux and HPC Environment | | | |
| Problem Definition | | Introduction to Linux and HPC Environment | | | |
| Theory  (100 words) | |  **Definition:** High Performance Computing (HPC) involves using supercomputers and parallel processing to perform complex computations efficiently and quickly.   **Purpose:**   * To solve large-scale scientific and engineering problems. * To process massive data sets in less time. * To improve simulation speed and accuracy.    **Key Components:**   * Compute Nodes (CPUs/GPUs) * Memory (RAM) * Storage Systems (HDDs/SSDs) * High-speed Interconnects * Software Stack (Libraries, Tools, Compilers)    **Parallel Computing:** Core concept of HPC where multiple tasks run simultaneously to reduce execution time and utilize hardware efficiently.   **Role of Linux in HPC:**   * Open-source, stable, and customizable OS. * Provides excellent support for networking and cluster management. * Compatible with most HPC tools and scientific applications. | | | |
| Code: | | * ls * cd Downloads * pwd * mkdir MyDocuments * rm -rf MyDocuments * top * man dnf * touch text.txt * nano text.txt | | | |
| Output | |  | | | |
| Output Analysis | | We have taken a brief overview of the main concepts of HPC and have practices working on a live Linux environment running CentOS Stream 10. | | | |
| Link of student Github profile where lab assignment has been uploaded | | https://github.com/Shantnu-Talokar/High-Performance-Computing | | | |
| Conclusion | | We have taken a brief overview of the main concepts of HPC and have practices working on a live Linux environment running CentOS Stream 10. | | | |
| Plag Report (Similarity index < 12%) | | **A screenshot of a computer  AI-generated content may be incorrect.** | | | |
| Date | | 01/09/2025 | | | |