

STANDARD OPERATING PROCEDURE

UTILIZATION OF HIGH PERFORMANCE COMPUTING (HPC)

Appendices

1. Appendix 'A' - HPC Machine Specifications
2. Appendix 'B' - HPC Access Request form
3. Appendix 'C' - HPC Access charges for external members
4. Appendix 'D' - List of HPC Administration team

INTRODUCTION

General

1. High Performance Computing (HPC) applications have become synonymous with AI apps in general and with Machine Learning and Deep Learning apps in particular; today most HPC systems are created with these workloads in mind. These HPC applications are driving continuous innovation in Healthcare, genomics and life sciences, financial services, Government and Defense, Energy, etc.
2. HPC machine was procured in Department of Information Technology through the MODROB project fund sanctioned in year 2019-2020. (HPC Specifications are attached in Appendix 'A').
3. Department of Information Technology has been given the responsibility to monitor the usage of HPC.

AIM

4. The aim of this SOP is to lay down the procedures for access of the facility provided by the HPC and define the scope of its utilization.

PURPOSE OF HPC

5. To enhance the knowledge in niche fields of AI, ML and DL etc among faculty and students and provide required infrastructure to inculcate research culture in Deep Learning and Machine Learning.
6. The High performance computing lab will be utilized as follows-
 - (a) Provide access of its HPC machines to all users in its college premises on its internal network.
 - (b) Develop a dashboard for better user experience and control.

- (c) To provide dedicated storage facility to its HPC machine users for the data they want to use.
- (d) HPC is intended to be used by the PhD researchers, students and faculty who are working in the domain of the Deep Learning and Machine Learning.

UTILIZATION PROCEDURE

7. This lab is available for students & faculty. While using this lab, following points to be followed for the smooth functioning of lab:-
- (a) The faculty/ Students can utilize this lab 24X7 for their research/ projects. The HPC facility request form is attached in **Appendix 'B'**.
 - (b) On approval from HOD (IT), HPC admin will issue the required login credentials for the user.
 - (c) Lab Assistant will maintain the records of issue/ deposit equipment's.
 - (d) User will access HPC either from college network or from their home remotely. In case any connectivity issue during the usage will be brought to the notice of Lab In-charge.
 - (e) Lab In-charge will put up the Lab functionality report to the HOD IT once in a month.

SECURITY RULES

8. The Security aspects related to HPC are mentioned below :-
- (a) Security aspects related to users who are accessing HPC from Outside through VPN.
 - (b) Defense Bolt Firewall is used along with AIT WAN firewall.
 - (c) Data stored is encrypted and password protected.
 - (d) Only Authorized users are able to access Data stored on HPC.
 - (e) The Hardware level security lock is used.
 - (f) SSL certificate base admin and users access portal is implemented.

CHARGES FOR EXTERNAL (NON AIT) MEMBERS

- 9. For AIT students and Staff, HPC is free of charge.
- 10. For External members, the charges are given in **Appendix 'C'**

RESPONSIBILITIES OF HPC ADMINISTRATION

11. The HPC administration task consists of following responsibilities :-
- (a) User's login credential creation.
 - (b) User's container deletion once project is completed.
 - (c) Securing User's access and Data.
 - (d) Providing support to user in accessing HPC facility.
 - (e) Handling and monitoring HPC resource management.
12. HPC Administration team list is attached in **Appendix 'D'**

APPROVAL

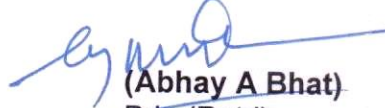
13. HPC facility is accessible only when the request is granted by HoD IT.

CONCLUSION

14. The above procedure will be strictly adhered for proper utilization of HPC and benefit of students.

File No : AIT/0001/Gen Ruling/Adm
Army Institute of Technology
Alandi Road, Dighi Hills, Pune - 15

Date: 17 Jan 2024


(Abhay A Bhat)
 Brig (Retd)
 Director

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HPC MACHINE SPECIFICATIONS**1. HPC Configuration:**

Hardware: Machine with 2X Intel® Xeon® Silver 16 Cores Processor, 128GB DDR4 ECC, 2x Seagate® Enterprise Class 2TB 2.5" 6GB/s, 7.2K RPM SATA HDD: with Raid support 0,1,5,10, 512GB M.2 SSD for Operating System, 2-port Gigabit Ethernet card and supporting upto 8 GPGPU .

2. GPU Configuration:

4 x NVIDIA® Professional Series Quadro P6000 RTX PCIe 3.0– 24GB

REQUEST FOR HPC FACILITY

1. Name: _____
2. College/ Industry name: _____
3. Role:
 Student faculty Industry
4. Department: Year (If Student): _____
5. E-mail ID: _____
6. Phone Number: _____
7. Title of Project: _____
8. Brief of Project: _____
9. Duration of Project on HPC (in months): _____
10. Date of project commencement on HPC: _____
11. Herby it is confirmed that about mentioned information is correct.

Dated Signature of Applicant

Admin Use only	
Remark By Admin (Sanctioned/ Not Sanctioned)	Admin Signature
Remark By HOD IT (Approved/ Not approved)	HOD Signature

Appendix 'C'
(Ref Para 10 of SOP)

HPC ACCESS CHARGES FOR EXTERNAL MEMBERS

Ser No	RAM	Duration		
		Per month (Rs)	Per Six Months (Rs)	Yearly (Rs)
1.	Upto 8GB RAM	2000/-	8000/-	15,000/-
2.	Upto 16 GB RAM	4000/-	16000/-	30,000/-
3.	Upto 32 GB RAM	8000/-	32000/-	60,000/-
4.	Upto 64 GB RAM	16000/-	64000/-	120000/-

Note : The above mentioned charges are applicable from 1st Jan 2024. The above charges will be reviewed after every year.

LIST OF HPC ADMINISTRATION TEAM

1. Dr Ashwini T Sapkal, Associate Prof, IT Dept
2. Dr Rahul Desai, Associate Prof, IT Dept
3. Prof Vaishali Ingale, Asst Prof, IT Dept
4. Mr Rohan Sonawane, Lab Asst.