

FOR THE “Supply Installation and Upgradation of operating system and core services- HPC Cluster” AT INDIAN INSTITUTE OF TECHNOLOGY DHARWAD

NOTICE INVITING QUOTATIONS FOR LOCAL PURCHASE

1.	LPC No.	IITDH/MMD/LPC/HPC/2025-26/816	
2.	Description	FOR THE “Supply Installation and Upgradation of operating system and core services- HPC Cluster” AT INDIAN INSTITUTE OF TECHNOLOGY DHARWAD.	
3.	Specifications	Annexure Attached	
4.	Quantity	Annexure Attached	
5.	Procurement Category	OH-35, Services	
6.	Procurement Type	Local Purchase	
7.	<p>a) Submission of Quotation: Hard copy in sealed cover by post/speed post/in person only. Online or email submissions will not be accepted.</p> <p>b) Mention “Quotation for IITDH/MMD/LPC/HPC/2025-26/816” on the sealed cover. The sealed cover should contain two separate covers, namely:</p> <p>1) “Technical Document for IITDH/MMD/LPC/HPC/2025-26/816”</p> <p>2) “Financial Document for IITDH/MMD/LPC/HPC/2025-26/816.”</p>		
8.	Cover No.	Cover Type	Description
	1	Technical Document	Compliances of specification with detailed catalogue/ brochure, MAF, Warranty Declaration, Bidders Information, Delivery Period etc.
	2	Financial Document	A separate financial quotation shall be submitted as per Annexure III. The financial bid shall be considered for further evaluation only in respect of those participants who are found to be technically qualified.
9.	Form of Contract	Buy/Supply	
10.	Quotation validity (days):	30 Days	
11.	Period of Work/Delivery Period (Days)	Delivery period of materials 30 days from the date of PO	
12.	Payment Terms	Within 30 days (Ref Terms of Payment Section II of page no.3)	
13.	Delivery Location	Room Number 012(HPC and Data centre room), A2 Building, IIT Dharwad Permanent Campus, ChikkamalligawAD, Dharwad-580011, Karnataka, India.	
14.	Pin Code	580011	
15.	Details of the Quotation Inviting Authority	Assistant Registrar (MMD), IIT Dharwad Address: IIT Dharwad Permanent Campus, ChikkamalligawAD, Dharwad-580011, Karnataka, India	
16.	Delivery Address for Submission of Hard Copy Quotations	Prof Sontti Somasekhara Goud, Assistant Professor, Chemical Engineering, IIT Dharwad. Address: Academic Block-II (Science) [A2 - 217], IIT Dharwad Permanent Campus, ChikkamalligawAD, Dharwad-580011, Karnataka, India.	

Section – I: Instructions to participants

1. **Indian Institute of Technology Dharwad** invites Quotations for the item as mentioned in **SI. No. 2 of page 1** of this document and as per the **Technical Specifications** given in **Section III** of this document.
2. The participant should note that the **technical specifications** mentioned in **Section III** form the core of the product. The offers must strictly be as per the specifications given. At the same time, it must be kept in mind that mere copying of our specifications in the Quotation shall not make the Quotation eligible for consideration. A Quotation has to be supported with the **original catalogue** of the quoted item(s), duly signed by the **authorized person** participating. Non-compliance with the above shall be treated as **incomplete/ambiguous**, and the quote may be ignored without giving an opportunity to the participant for further **clarification/negotiation**, etc.
3. The participant shall ensure that the quote submitted by him includes **all accessories (as per annexures)** for full execution of the contract. The participant shall not charge extra for additional items required to meet the **operational requirement** at the stage of **installation and commissioning**.
4. Quotations can be submitted through **Hard copy in sealed cover by post/speed post/in person only. Online or email submissions will not be accepted.**
5. The participant must submit **all documents required for evaluation of the techno-commercial Quotation**, duly signed and sealed by the **competent authority** of the firm. In the event of **non-receipt of any of the required documents**, the participant may be **disqualified** from the process. The **Quotation or any paper related to the Quotation** will **not** be accepted after the **given deadline** or the **last date published on the webpage of Local Purchase listings**. Further, any **separate correspondence** in this matter shall not be entertained.
6. During evaluation of the quote, the **committee** will scrutinize the documents mentioned above and may forward any or all the documents to the **concerned authorities** for **verification and authentication**. In case any document(s) as submitted by the participant is found/reported to be **fake**, the participant will be out of the **evaluation process** and suitable **legal action** may be initiated against the participant.
7. Besides, scrutinizing the documents submitted with the quote, the participant may be **interviewed** by the **Committee** to assess the **eligibility, capability, and suitability** of the participant.
8. The above-mentioned **basic eligibility conditions and additional clauses** are broad guidelines for **pre-qualification**, and the **Director, IIT Dharwad**, hereby reserves the right to **relax/alter/modify/add any or all the conditions**.

Section - II: General Conditions of Contract

Evaluation of Quotation:

- a) Techno-Commercial Quotation will be evaluated for suitability as per documentary validation, eligibility criteria, and technical specifications laid out in this document. The Quotations found suitable will be recommended by the Committee and, after approval of the competent authority, shall be deemed as technically suitable offers.
- b) In case any participant is silent on any clauses mentioned in this document, IIT Dharwad shall construe that the participant has accepted the clauses of this document, and no further claim will be entertained.
- c) No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of the Quotation.
- d) Any OEM (or their authorized resellers) from a country that shares a **land border with India** will be eligible to participate in this document only if the OEM is registered with the **Competent Authority** in compliance with the **Dept. of Expenditure, Ministry of Finance OM No. F.No.6/18/2019-PPD dated 23/07/2020**, as amended from time to time.

Corrupt & Fraudulent Practices:

IIT Dharwad requires that participants, suppliers, contractors, and consultants, if any, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the terms set forth below are defined as follows:

- a) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of in kind/value to influence the action of a public official in the procurement process or in contract execution.
- b) "Fraudulent practice" means a misrepresentation or omission of facts to influence a procurement process or the execution of a contract.
- c) "Collusive practice" means a scheme or arrangement between two or more participants, designed to establish QUOTATION prices at artificial, non-competitive levels; and
- d) "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.
- e) IIT Dharwad will reject a proposal for award if it determines that the participant recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract in question.

Training and pre-installation checks:

- a) The participant shall also submit training proposal for the operation and maintenance to the personnel of IIT Dharwad on the offered equipment/machinery.
- b) Wherever needed, our technical personnel should be trained by the supplier at the project site free of cost.
- c) The participant shall mention the pre-installation requirements for the equipment, like ambient temperature, humidity, civil work, weather specifications, power specifications, etc. When all items are provided, full performance satisfaction should be demonstrated to IIT Dharwad.

Terms of Payment: (For Indigenous Supplies):

Payment within 30 days from the date of delivery, installation, commissioning, demonstration, training, testing and receipt of Acceptance Certificate of concerned Department/Section/ Materials Management Division, IIT Dharwad. Payment shall be made by electronic fund transfer or such other mode offered by the Bank. IIT Dharwad does not pay any advance payment to the party. Any request for Advance payment will be summarily rejected.

Transfer and Subletting:

The seller shall not sublet, transfer, assign, or otherwise part with the acceptance to the contract or any part thereof, either directly or indirectly, without the prior written permission of the Purchaser.

Delivery terms (only DDP, IIT DHARWAD mode of shipment acceptable):

Items should be delivered to the specified location in the permanent campus of IIT Dharwad, Karnataka, India – 580011, free of cost. The supplier should arrange for the entire process from the origin of equipment to the Stores at IIT Dharwad (including charges for safe packing, Marking & labelling, loading charges, road/air freight, insurance of goods, unloading charges, transport & unloading at buyer destination, installation, commissioning, demonstration and training; within the quoted price).

Freight & Insurance:

No freight and insurance charges will be provided, and the materials are to be delivered at IIT Dharwad Permanent Campus, IIT Dharwad at the cost and risk of the supplier within the quoted price as per the delivery terms mentioned in the above paragraphs.

Warranty Condition:

- The supplier must give a **comprehensive on-site support and maintenance** for a period specified as a part of the specifications in respect of the subject item (mentioned in Section III) from the date of commissioning and acceptance of the items.
- The warranty provided shall be comprehensive, meaning it must include the cost of the spares, materials, manpower, and any other incidental expenses thereto.
- Any deviation in the equipment and the specification from the accepted terms and conditions may lead to rejection and non-acceptance of stores. In such case, the participant/manufacturer is required to supply all the items in the specified form to the satisfaction/ specifications mentioned in the order and demonstrate at their own cost. The payments shall be made only after receiving the materials as per the required specification and quality to the satisfaction of the competent authority of IIT Dharwad.

Installation & Demonstration:

- The supplier is required to carry out the supply, installation, commissioning & demonstration of the subject item at the permanent campus of IIT Dharwad installation site within the delivery period; otherwise, the penalty clause will be the same as per the supply of material (refer to the liquidated damages below).
- In case of any mishandling/damage to items and supplies during carriage from the origin of items to the installation site, the supplier has to replace it with new items/supplies immediately at their own risk and cost. The supplier will settle his claim with the insurance company at their convenience. IIT Dharwad will not be liable for any type of losses in any form.

- c) Supplier shall be responsible for installation/demonstration wherever applicable and for after-sales service during the warranty period and thereafter as mentioned in the contract.
- d) Installation demonstration to be arranged by the supplier within the quoted price, and the same is to be done within 15 days of the arrival of the equipment at the site or whenever informed by IIT Dharwad.

Liquidated Damages:

The equipment should be delivered/dispatched to destination and ready for use not later than the delivery period specified. If the supplier fails to deliver any or all the stores or perform the service by the specified date, liquidated damages @0.5% per week or part thereof in respect of the value of the delayed stores will be deducted from the bill, subject to a maximum of 10% value. The same terms are applicable for the installation, training, and demonstration clause mentioned above.

Dispute and Jurisdiction:

Any legal disputes arising out of any breach of contract pertaining to the whole process of this procurement shall be settled in the court of competent jurisdiction in the district of Dharwad, Karnataka.

Cancellation of Notice Inviting Quotation:

- a) Notwithstanding anything specified in this document, the **Purchaser/IIT Dharwad**, at its sole discretion, unconditionally and without assigning any reasons, reserves the rights:
 1. To accept or reject the lowest Quotation or any other Quotation or all the Quotations.
 2. To accept any Quotation in full or in part.
 3. To reject any Quotation or offer not confirming to the terms mentioned in this document.
 4. To cancel the Notice Inviting Quotation at any stage during the evaluation and before the award of work.
- b) Offers which deviate from the **vital conditions** (as illustrated below) of the Quotation shall be rejected:
 1. Non-submission of complete offers as mentioned in this document.
 2. Offers received after the due date and time, or submitted through email/fax, shall be rejected. Only hard copy submissions received within the stipulated date and time shall be considered. Receipt of offers in open condition.
 3. Conditional Quotations and unsigned Quotations will also be rejected. The Supplier shall not be liable for imposition of liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of

Force Majeure.

- a) For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

- b) If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

Supervision of Commissioning:

The supplier shall depute concerned specialists for the supervision of the commissioning of the machine to be carried out. The Supplier shall make necessary arrangement at their own expenses for stay, transport and other expenses of their specialist during their stay in Dharwad which also includes imparting free of cost training to IIT Dharwad personnel.

The Institute Reserves the Right to:

- a) Increase or decrease the quantity of the item(s) as per requirement.
b) Reject the QUOTATION in absence of not furnishing the documentary evidence in respect of GST and Income Tax clearance certificates together with the performance of supplies in various branches/institutions.
c) Reject the QUOTATION in the event of non-furnishing the authentic documentary evidence in respect of Testing reports / Performance report of the concerned Govt. Organization / Institutions about the products being manufactured and marketed. The performance test of the product can be conducted at Institute level also for which charge will have to be borne by the suppliers.
d) Reject the supplies already made, if not found up to the mark. Thorough checking may be adopted to test the correctness of the supply. In such an event further, action may call to conform or discard the supply.

Performance Guarantee (as per GFR 2017 Rule 171):

- a) Suppliers shall furnish 5% of the contract value as a performance security for a period of 02 months beyond the expiry of all warranty and maintenance contract related obligations within 15 days of acceptance of the Purchase Order.
b) Performance Security may be furnished in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt from a Commercial bank, Bank Guarantee from a Commercial bank or online payment in an acceptable form, safeguarding the purchaser's interest in all respects as per GFR 2017, Rule 171, and as amended from time to time

LOSS OR DAMAGE:

If goods supplied are found defective either in material or workmanship or do not conform to the specifications or unsuitable for the purpose for which they are meant for, the seller has to replace the required goods at free of cost. However, IIT Dharwad reserves right to reject the goods and repudiate.

Table-1

SI. No.	Terms and Conditions	IIT Dharwad Procurement requirements	Response by vender M/s_____
1.	Unconditional acceptance to all the Terms and conditions set out herein	Declaration to be provided	
2.	Price QUOTATION Format	As per Annexure-III (on the Firm's Letterhead)	
3.	Price QUOTATION Currency	INR	
4.	Delivery terms	Ref Delivery terms Section II of page no.4	
5.	GST Rate (If Local supply in India)	@ Applicable rates	
6.	Warranty	Submit a declaration in this regard (as per Annexure-I)	
7.	Blacklisting status	Submit a declaration in this regard (as per Annexure-II)	

Section – III Complete Schedule of Requirements and Compliance

This section has following compliance requirements:

i	Compliance for technical specifications of the equipment to be supplied
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Table of compliance for technical specifications of the equipment to be supplied (to be filled by participant).

Annexure

Upgradation of Operating System and Core Services – HPC Cluster

Scope of Work (SoW): The scope includes upgradation, configuration, integration, testing, and support of the HPC system services as detailed below:

1. Operating System Upgradation

- Upgrade the operating system to Ubuntu or Rocky Linux on all HPC nodes (Master and Compute nodes).
- Ensure compatibility with existing hardware, interconnect, and storage systems.
- Perform system hardening as per HPC security best practices.
- Configure kernel and network parameters optimized for HPC workloads.
- Ensure minimal downtime and proper rollback mechanism.
- Conduct post-installation validation and performance checks.

2. Authentication Service – Secure OpenLDAP Setup

- Installation and configuration of Secure OpenLDAP server.
- Configuration of OpenLDAP clients across all compute and login nodes.
- Enable secure authentication using SSL/TLS encryption.
- Migration of existing user accounts, groups, and credentials.
- Integration of LDAP authentication with:
 - Ø SLURM scheduler
 - Ø NFS services
 - Ø Login services
- Testing of centralized authentication across all nodes.

3. Network File System (NFS) Service

- Installation and configuration of NFS server for:
 - Ø Hosting user home directories.
- Secure export configuration and permission management.
- Implementation of per-user storage quota mechanism.
- Configuration of soft and hard quota limits.
- Performance tuning of NFS for multi-node parallel access.
- Validation of file access from all compute nodes.

4. HPC Job Scheduler – SLURM (Community Edition)

- Installation of the latest stable SLURM Community Edition.
 - Ø Configuration of:
 - Ø Controller and compute daemons.

- Ø Partitions and node definitions.
- Ø Resource allocation policies.
- Ø Fair-share and priority scheduling.
- Integration with LDAP for user authentication.
- Setup of accounting and job tracking features.
- Testing of job submission, cancellation, and monitoring.
- Validation of parallel (MPI) job execution.

5. HPC Software Stack Installation

Installation and configuration of required HPC software packages including:

- **Anaconda** (Python distribution and environment management).
- **CUDA Toolkit** (GPU acceleration support, if applicable).
- Reinstallation of all scientific and engineering software that existed in the previous cluster.
- Installation of necessary compilers and MPI libraries (if required).
- Configuration of environment modules for software access.
- Validation through sample workload execution.

6. Billing System Integration

- Reinstallation and configuration of existing custom billing software.
- Integration with SLURM accounting data.
- Verification of CPU-hour and resource usage tracking.
- Testing of billing report generation.
- Ensuring data consistency and accuracy of usage logs.

7. Testing and Commissioning

Functional testing of:

- Authentication system.
- NFS and quota enforcement.
- SLURM job scheduling.
- Installed software packages.
 - · Performance validation through benchmark tests.
 - · Stability testing under multi-user load.
 - · Final acceptance testing with designated HPC administrators.

Online Support (One Year)

- One-year online technical support from the date of commissioning.
- Remote troubleshooting assistance.
- Guidance on security patches and minor updates.
- Assistance for resolving configuration and operational issues.

List of Software Tools Used in Research and HPC Applications

1 Programming and Development Tools

Table 1 lists commonly used programming and development tools for HPC and scientific computing environments.

Table 1: Programming and development tools used in HPC and scientific computing		
S. No	Software / Tools	License Type
1	MATLAB	Commercial
2	Python	Open Source
3	C++	Open Source
4	CUDA	Free (NVIDIA SDK)
5	NVIDIA GPU Programming Tools	Proprietary
6	Parallel Programming Tools (GPU)	Mixed
7	GCC (v10 and above)	Open Source
8	Clang	Open Source
9	Make	Open Source
10	CMake	Open Source
11	Ninja	Open Source
12	Spack	Open Source
13	SSH	Open Source
14	SLURM	Open Source
2 CFD and Engineering Simulation Software		
Table 2 presents CFD and engineering simulation tools widely used for multiphysics and fluid dynamics studies.		
Table 2: CFD and engineering simulation software		
S. No	Software	License Type
1	ANSYS	Commercial
2	COMSOL Multiphysics	Commercial
3	OpenFOAM	Open Source
4	Abaqus	Commercial
5	Basilisk	Open Source
6	Gerris	Open Source
7	Fire Dynamics Simulator (FDS)	Open Source
8	DAMASK	Open Source
9	TCAD	Commercial
10	SOFiSTiK	Commercial
11	Rhino3D	Commercial
12	Grasshopper	Commercial
3 Molecular Simulation and Computational Chemistry Software		
Table 3 summarizes commonly used molecular simulation and computational chemistry software.		
Table 3: Molecular simulation and computational chemistry software		
S. No	Software	License Type
1	VASP	Commercial
2	LAMMPS	Open Source
3	CP2K	Open Source

4	CPMD	Open Source
5	Quantum ESPRESSO	Open Source
6	Gaussian	Commercial
7	GAMESS	Free Academic
8	GULP	Free Academic
9	Molpro	Commercial
10	Molcas	Open Source
11	GROMACS	Open Source
12	AMBER	Mixed
13	CHARMM	Commercial
14	NAMD	Open Source

4 Machine Learning, GIS and Data Science Tools

Table 4 lists machine learning, GIS and data science tools used in research and data analytics.

Table 4: Machine learning, GIS, and data science tools

S. No	Software	License Type
1	PyTorch	Open Source
2	TensorFlow	Open Source
3	STATA	Commercial
4	QGIS	Open Source
5	ArcGIS	Commercial
6	GRASS GIS	Open Source
7	GraphPad Prism	Commercial

5 Bioinformatics and Data Analysis Tools

Table 5 provides a list of bioinformatics and biological data analysis software.

Table 5: Bioinformatics and biological data analysis tools

S. No	Software	License Type
1	FlowJo	Commercial
2	XCMS	Open Source
3	COPASI	Open Source
4	HISAT2	Open Source
5	Salmon	Open Source
6	Kallisto	Open Source
7	Seurat	Open Source
8	Scanpy	Open Source
9	FastQC	Open Source
10	Trimmomatic	Open Source

6. Specialized Research Codes

Table 6 lists specialized research codes and internally developed tools used in advanced simulations.

Table 6: Specialized research codes and in-house software tools

S. No	Software / Tool	License Type
1	QDNG	Research Code
2	NewtonX	Open Source

3	SHARC	Open Source
4	STAR	Research Code
5	In-house Developed Codes	Internal
6	Multi-reference Electronic Structure Methods	Research Codes

Bidders are required to strictly adhere to all technical specifications and scope of work outlined in this LPC bid. In case of any deviation, incomplete information, or non-compliance, the IIT Dh reserves the right to reject the bid during technical evaluation. Only those bids meeting all requirements will be considered for financial evaluation.

In addition to above specification the vendor has to provide catalogue/ brochure/ manuals and necessary technical documents in respect to the line item.

I/We M/s _____ hereby declare and certify that we comply with all the above specifications.

Authorized Signatory with Seal

Annexure I

DECLARATION OF COMPREHENSIVE WARRANTY AND MAINTENANCE VISITS

I/We M/s _____ hereby declare that items to be supplied against this participant shall be covered as comprehensive warranty as given in the specifications document with scheduled maintenance visit on call basis/regular basis/quarterly basis. This warranty shall cover defects in materials, workmanship, and performance for a period of _____ (as mentioned in specification Section III) from the date of acceptance/installation.

Date:

(Authorised signature & seal of the participant)

Annexure-II

UNDERTAKING REGARDING BLACKLISTING / NON-DEBARMENT

We hereby confirm and declare that we, M/s -----, is/are not under any active debarment from Ministry of Finance and/or Ministry of Education as on the date of QUOTATION submission.

Any change in the above status during the evaluation of the present quote shall be intimated to IIT Dharwad immediately.

Date:

(Authorised signature & seal of the participant)

(Annexure-III)

Price QUOTATION

Sl. No	Description of Item & Specification	Qty	HSN Code / SAC Code	Total QUOTATION Price* (in INR & DDP Basis)
1.	Supply Installation and Upgradation of operating system and core services- HPC Cluster	Annexure Attached		
2.	Discount offered (if any), on base price quoted			
3.	Sub-Total			
4.	IGST / CGST / SGST@ applicable Rates			
5.	GRAND TOTAL QUOTATION PRICE			

Authorised Signatory and seal