

**भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद**

धनबाद, झारखण्ड, भारत, पिन-826004

(शिक्षा मंत्रालय, भारत सरकार के अधीन राष्ट्रीय महत्व का एक संस्थान)

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD**DHANBAD, JHARKHAND, INDIA, PIN-826004****(An Institute of National Importance under Ministry of Education, Govt. of India)****PROJECT PURCHASE SECTION**Phone: (0326)2235660 || Email: projectpurchase@iitism.ac.in || Website: www.iitism.ac.in

CHCCUST-PRJ-052-23-24

10th November 2023**Request for Quotation**

To,

Subject: Supply & Installation of Ansys Enterprise with HPC (perpetual commercial license)

Sirs

Indian Institute of technology (Indian School of Mines), Dhanbad is interested for the purchase of the materials/ equipment listed below:

Sl.No.	Detailed Specifications	Quantity
1	Supply & Installation of Ansys Enterprise with HPC (perpetual commercial license) (Detailed Specifications attached at Annexure-II)	02 tasks

INSTRUCTIONS:

- 1) Please attach relevant technical literature of the item.
- 2) Please fill the attached form 01 regarding class of supplier.
- 3) Please attached authorization certificate from OEM.
- 4) Please mention after sales service information in your offer.
- 5) **Please attach a certificate that the quoted price is not more than that of any other Govt. organization/ institution in India. This has to be mentioned in the offer letter clearly.**
- 6) The rates should be quoted for each item separately as per price schedule attached as annexure I.
- 7) The items/ materials shall be required to be delivered at Center of Hydrogen and Carbon Capture Utilization and Sequestration Technologies (CHCCUST) of IIT (ISM) Dhanbad at the risk and cost of the tenderer.
- 8) Your tender must be **valid for minimum 120 days** from the date of opening of tender.
- 9) The stores are required to be delivered within 30 days, late delivery may not be accepted.
- 10) Full details of stores offered should be given in the tender along with supporting & relevant literatures/ Technical Literature.
- 11) The items offered should be of good quality confirming to BIS standards, wherever applicable.
- 12) **Advance payment is not admissible.** Payment shall normally be made within 3-4 weeks subject to receipt and acceptance & installation (as per Purchase Order Terms) of the ordered materials/items.
- 13) In the event of the supplier failed to supply the materials or install the same as contract condition, IIT (ISM) Dhanbad shall have the right to deploy suitable agency/ third party to get the job completed at the risk and cost of the supplier.
- 14) Tender may please be submitted **in sealed cover only super scribed with Enquiry No. CHCCUST-PRJ-052-23-24 latest by 01.12.2023**
- 15) The offer must be submitted in the office of Deputy Registrar (Project Purchase Section), Dean(R&D) office, CRF Building 2nd Floor, IIT (ISM), Dhanbad- 826004 (Jharkhand, India) only. Please send your offer by Regd.Post/ Speed Post/ Courier along with Courier receipt. Tender/ quotation will be received during IIT (ISM) Dhanbad working hours only (i.e. Monday to Friday). At any circumstances by hand delivery is not acceptable. Late or delayed tenders shall be summarily rejected. Bids sent through Email/Fax or submitted in unsealed cover(s) will not be accepted and such bids will be treated as non-responsive bids.
- 16) **Performance Bank Guarantee:** A bank guarantee issued by a Nationalized Bank in India towards PBG for an amount equal to 10% of total value of purchase order and valid till the period beyond two months of completion of warranty period should be submitted in favour of **Registrar, IIT (ISM) Dhanbad.**
- 17) Any other information that you may like to obtain, you are free to contact IIT (ISM) Dhanbad before submission of tender.
- 18) IIT (ISM) Dhanbad reserves the right to accept and/or to reject any/all tenders without assigning any reason.
- 19) **Payment:** will be made within 30-45 days after satisfactory supply, inspection, installation/commissioning/ satisfactory services & acceptance and on submission of pre-receipted tax invoice, delivery challan, warranty certificate and installation report in triplicate



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- 20) Please attach purchase order copies of the same equipment which you have supplied to any other Govt., public sector and autonomous institutions.
- 21)
 - a) In a tender, either the Indian agent on behalf of the principle/ OEM and the Principle/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.
 - b) If an agent submit bid on behalf of the principle/ OEM, the same agent shall not submit a bid on behalf of another principle/ OEM in the same tender for the same item/product.

Deputy Registrar
Project Purchase Section
Dean (R&D) office
IIT(ISM),Dhanbad



GSTIN : 20AAAAI0686D1ZA

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10th November 2023**Annexure –I****1. PRICE SCHEDULE FOR GOODS BEING OFFERED WITHIN INDIA**

Name of the Bidder _____

NIT Reference No. _____

File Reference No. _____

Sl. No.	Full Description of items with (HSN Code/SAC Code)	Quantity	Unit Price (in INR)	Total Amount (in INR)
1.				
2.				
3.				
Ex-Works Price-				
Packing & Forwarding				
Transportation				
FOR (IIT ISM) Dhanbad				
<u>GST/IGST (their rate(s) as the case may be, clearly specified)</u>				
Insurance up to Destination/handover (in case of fabrication)				
Installation & Commissioning charge				
Training charges, if any				
Additional Warranty Charges, if any				
Annual Maintenance Charge, if any				

*(On the basis of the technical specifications submitted)

Total Bid Price _____

in words _____

Note :

(a) The Price schedule of optional items shall be indicated in a separate sheet in the same Performa.

(b) Cost spare parts may be indicated separately

Signature of Bidder

Name _____

Business

Address _____



GSTIN : 20AAAAI0686D1ZA

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Form-1

Declaration by bidder

(Please specify Class of Supplier and Local Content percentage)

In accordance and manner as specified in Order No. P45021/2/2017-PP (BE-II) dated: 04th June 2020 and 2th March 2021 issued by DIPP, Ministry of Commerce and Industries, GoI.

To,

The Director,

Indian Institute of Technology (Indian School of Mines)

Dhanbad -826004

Respected Sir,

In accordance with the order No. P-45021/2/2017-PP (BE-II) dated 04th June, 2020 and P-45021/2/2017-BE-II-Part (1) (E-50310) dated 4th March 2021 I hereby declare that

I am aware about all provision mentioned in Tender No. CHCCUST-PRJ-052-23-24 as well as order No. P-45021/2/2017-PP (BE-II) dated 04th June, 2020 and P-45021/2/2017-BE-II-Part (1) (E-50310) dated 4th March 2021 and abides by the same.

I declare that for this tender, I am a **Class-I local supplier / Class-II local supplier / Non-local supplier** (Strike out whichever is not applicable) and classification is based on local content of goods/services/work offered by bidder in this tender.

Local content (in percentage) in offered good/services/work is: _____%

Whereas 'Local Content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

The services such as transportation, insurance, installation, commissioning, training and after sales service support like ACM/CMC etc. are not included as Local content in case of imported products.

The local content for all inputs which constitute the said goods/services/works has been verified and bidder is responsible for the correctness of the claims made therein.

Date:

Signature:

Name of Authorized Signatory:

Name of Bidder:

Seal of Bidder:

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10th November 2023**ANNEXURE- II****Technical Specifications**

A comprehensive toolkit that includes the computational fluid dynamics solvers of ANSYS addressing widest array of application, all the time, without compromise; including tools to accelerate and optimize results & simulation-workflow.

Licenses

- **Ansys CFD Enterprise – 2 tasks, perpetual commercial license**
- **Ansys HPC Pack – 2 qty, perpetual commercial license**
- **Ansys Learning Hub License – 1 qty. for 1 year**

The product list in the offered ANSYS package must include the following:

1. Fluent
2. Multi-GPU Solver
3. CFX
4. FENSAP-ICE
5. Forte
6. Chemkin
7. Energico
8. Reaction Workbench
9. Encrypted Model Fuel Library
10. Polyflow
11. SpaceClaim/Discovery Modeling
12. EnSight
13. Meshing – Workbench Meshing, Fluent Meshing, ICEM CFD, TurboGrid, OptiGrid
14. DesignXplorer
15. Ansys Customization Suite
16. HPC – 2 Packs

The required product capabilities to be offered in the proposed ANSYS package are

1. Fluent Capabilities

- Steady-state flow
- Transient flow
- 2-D and 3-D Flow
- Incompressible & Compressible Flow
- Customizable Materials Library
- Non-Newtonian Viscosity
- Real Fluids Models (Steam, Refrigerants, Cryogenics, NIST data)
- Pressure-based coupled solver
- Density-based coupled solver
- Native Multi-GPU Solver

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- Coupled and Segregated Solvers
- Subsonic Flow
- Supersonic and Hypersonic Flows
- Turbulence – RANS Models
- Turbulence – LES/SAS/DES
- Heat Transfer – Natural Convection, Conduction and CHT
- Heat Transfer – Shell Conduction.
- Thermal Radiation – Participating & Transparent Media
- ECAD import for PCB thermal modeling.
- Expressions, inc. functions of solution values
- Flow-Drive Solid Motion(6-DOF)
- Porous Media
- Reduced Order Model (ROM) creation
- Dynamic/Moving-Deforming Mesh
- Overset Mesh
- Dynamic Solution Adaptive Mesh Refinement
- Fan Model
- Virtual Blade Model
- Inert and Massless Particle Tracking
- Coupled Particle Tracking (With Mass)
- Wall Film Modeling
- Macroscopic Particle Model
- Reacting/Combusting Particles
- Particle Break-UP and Coalescence
- Design Particle and Coupling (DDPM) and Granular Particle modeling
- Wall Erosion Modeling
- Discrete Element Method (DEM)
- Free Surface VOF Model
- Regime change between particle and Free surface (VOF, < - >DPM)
- Multiphase flow modeling
- Complex Multiphase Regime Transitions
- Surface Tension
- Gas – Liquid – Solid Phase change models including Cavitation, Boiling, Evaporation, condensation, Solidification and melting
- Reaction Between Fluid Phases
- Non-reacting Multicomponent Flow/Species Transport
- Reacting Multicomponent Flow/Species Transport
- Extensive combustion modeling including FGM
- Finite Rate Chemistry modeling
- Pollutants and Soot modeling
- Ability to use Model Fuel Library Reaction Mechanisms.
- Comprehensive Surface-Kinetics
- Flamelet Table Generation
- Virtual cooling hole models (effusion and blade film cooling)
- Electro-chemistry modeling for Li-ion Batteries
- Battery Swelling Modelling
- Battery Life Modeling

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- Fuel Cell Modeling
- Multiple Stationary and Rotating Reference Frames
- Periodic Interfaces
- Mixing Plane/stage Frame change Interface
- Sliding Mesh/Transient Rotor -Stator Frame Changes Interface
- Pitch Change across Frame change Interfaces
- Aerodynamic damping (Blade Flutter)
- Dedicated Aerodynamic Workspace (Fluent Aero)
- In-flight Aircraft Icing modeling
- Adjoint solver for shape optimization
- Parameter-driven mesh morphing and optimization
- Parameters
- Design Point Studies
- Design of Experiments
- Local Parallel solving
- Distributed Parallel solving.
- Batch Solving
- Parallel solving on cloud launching from desktop (requires cloud license)
- Workbench Integration
- Simulation Reports
- Functional mock up unit (FMU) coupling
- Fluid Structure Interaction (FSI) with Ansys Mechanical (requires mechanical license)
- Fluid Thermal Deformation with Ansys Mechanical (requires mechanical license)
- Built in FEA solver for Fluid-Structural and Fluid-Thermal Stress Coupling
- Aero Acoustics and Vibro Acoustics.
- Acoustic Structural
- Fluid Magnetohydrodynamics (MHD)

2. Fluent Meshing Capabilities

- Polyhedral, Poly-Hexacore, Hexcore, Tet and Prism Meshing
- Mosaic-Enabled Meshing Technology
- Task-Based Workflow – Watertight Geometries
- Task-Based Workflow – Fault Tolerant Geometries
- Parallel Mesh Generation
- Wrap Meshing
- Rapid Octree meshing

3. CFX Capabilities

- Steady -State Flow
- Transient Flow
- Customizable Material Properties
- Non -Newtonian Viscosity
- Real fluids models (steam, refrigerants, cryogenics, NIST data)
- Flow-Drive Solid Motion (6 -DOF)
- Pressure -Based Coupled Solver
- Expressions, inc. functions of solution values
- Dynamic/Moving-Deforming Mesh



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- Compressible and Incompressible Flow
- Porous Media
- Subsonic Flow
- Supersonic Flow
- Turbulence – RANS models
- Turbulence - LES/SAS/DES
- Heat Transfer - Natural Convection, Conduction and CHT
- Thermal Radiation - Participating & Transparent Media
- Particle Tracking (Discrete Phase Modeling)
- Liquid Droplets (including Evaporation)
- Reacting/Combusting Particles
- Wall Erosion Modeling
- Free Surface VOF model
- Surface Tension
- Multiphase flow modeling (Eulerian)
- Gas – Liquid – Solid Phase Change models, including Cavitation, Boiling, Evaporation and Condensation
- Reactions Between Fluid Phases
- Multicomponent Flow/Species Transport
- Combustion modeling
- Acoustics / Aerodynamic noise
- Blade film cooling model
- Multiple Stationary & Rotating Reference Frames
- Periodic Interfaces
- Mixing Plane/Stage Frame Change Interface
- Transient Rotor -Stator Frame Change Interface
- Pitch Change across Frame Change Interfaces
- Aerodynamic Damping (Blade Flutter Analysis)
- Transient Blade Row
- Time Transformation
- Fourier Transformation
- Harmonic Analysis
- Automated Speedline / Performance Map creation
- Local and Distributed Parallel Solving
- Parallel Solving on Cloud launched from Desktop (requires cloud licensing)
- Workbench Integration
- Functional Mockup Unit (FMU) Coupling
- Fluid Structure Interaction (FSI) with Ansys Mechanical (requires Mechanical license)
- Fluid Thermal Deformation with Ansys Mechanical (requires Mechanical license)
- Fluid Magnetohydrodynamics (MHD)

4. Turbogrid Capabilities

- Automatic block - structured Hex meshing
- Predefined block topologies for blades
- Axial, Radial and Mixed machines
- Splitter blades
- Compressors, Fans, Turbines, Pumps

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- Rounded and sharp leading/trailing edges
- Partial tip clearances
- Automated hybrid meshing for secondary flow paths, complex tips, partial tip and hub gaps (buttons), and blends
- Automatic addition of approximate blends/fillets
- Support for multiple input formats (CAD, NDF, profiles/curves)
- Automatic creation of high -fidelity CAD from profile/curve input
- Mesh refinement maintaining consistent mesh topology

5. CFD Post Capabilities

- Simulation Reports
- Turbo-specific Surface and Line locators
- Turbo coordinate systems
- Turbo macros and calculations
- Multiple case file comparison
- Point, Line, Surface and Volume locators
- GPU accelerated animations.
- Keyframe animations
- Charts
- Contours, Vectors, Streamlines, Particle Tracks
- Expressions and quantitative calculations
- Operating Map post -processing
- Mesh quality metrics and calculations
- Polyflow Results Post –processing

6. Polyflow Capabilities

- Viscoelasticity and Yield Stress models
- Extrusion & Co -extrusion modeling
- Blow Molding modeling
- Fiber Spinning modeling
- Thermoforming modeling
- Screw extruder modeling
- 2D and 3D forming
- Mixers and Filling modeling

7. Forte Capabilities

- Automatic On -the -fly Mesh Generation with Dynamic Refinement
- Species Transport
- Finite Rate Chemistry
- Pollutants and Soot Modeling
- Sparse Chemistry Solver Dynamic Cell Clustering Dynamic Adaptive Chemistry
- Ability to Use Model Fuel Library Mechanisms
- Flame -speed from Fuel -Component Library
- DPK Spark -Ignition Model
- Internal Combustion Engine Specific Solution
- Ge -rotor, screw compressor and scroll compressor modeling

**8. Chemkin Capabilities**

- Species Transport
- Finite Rate Chemistry
- Multiphase Reactions
- Pollutants and Soot Modeling
- Sparse Chemistry Solver Dynamic Cell Clustering Dynamic Adaptive Chemistry
- Ability to Use Model Fuel Library Mechanisms
- Flame -speed from Fuel -Component Library
- Internal Combustion Engine Specific Solution
- 0 -D/1 -D/2 -D Reactor Models and Reactor Networks
- Plasma Reactions
- Comprehensive Surface -Kinetics
- Chemical and Phase Equilibrium
- Flamelet Table Generation
- Flame speed and Ignition Table Generation
- Reaction Sensitivity, Uncertainty and Path Analysis
- Surrogate Blend Formulation and Optimization
- Mechanism Reduction
- Reaction Workbench
- Model Fuel Library

9. Fensap-Ice Capabilities

- Simulation of Standard Droplets, SLD and Ice Crystals
- Inclusion of Vapor/Humidity Effects on Icing
- Icing Environments of Appendices C, O (SLD) and D (Ice Crystals)
- Pre-Defined Droplet Size Distributions
- Simulation of Rime, Glaze and Mixed Icing
- Single and Multi-Shot Icing Simulations with Mesh Deformation for Prediction of Ice Accretion and Aerodynamic Performance Degradation
- Single and Multi-Shot Icing Simulations with Automatic Re-Meshing for Prediction of Ice Accretion and Aerodynamic Performance Degradation
- Conjugate Heat Transfer (CHT) for Anti and De-Icing Simulations
- Ice Cracking
- Ice Shedding

10. Access To Additional Applications

- Discovery Modeling / SpaceClaim
- Ansys Meshing (Workbench Meshing)
- ICEM CFD
- EnSight Enterprise
- DesignXplorer