राष्ट्रीय प्रौद्योगिकी संस्थान हमीरपुर हमीरपुर177005-(हि .प्र.)
NATIONAL INSTITUTE OF TECHNOLOGY HAMIRPUR (H.P.)-177005
[An Institute of National Importance under Ministry of Education (शिक्षा मंत्रालय)]

E-TENDER NOTICE

Sealed online e-Tender in two bid system are hereby invited by the undersigned for the supply of following items on behalf of the Director, NIT, Hamirpur from the Eligible/ Experienced/ Resourceful, manufacturer's dealer/authorized distributor etc. having experience in appropriate field and who have successfully completed works of similar type, so as to reach in the office of the undersigned as per date & time mentioned below.

Sr. No.	Name of works/item	Qty/ No.	Earnest Money In Rs.	Time Limit
1	**Supply and installation of Two Wheeler Electric Vehicle Working Model Training Setup in Open Learning Format** t For detailed specifications etc please refer to SBD	1	Nil	60 days

1. Availability of bid document and mode of submission:-The bid document is available online and bid should be submitted in online mode on website http://www.eprocure.gov.in/ and http://www.nith.ac.in/. Bidder would be required to register in the web-site which is free of cost. For submission of bids, the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized certifying authorities (CA).

2. Key dates: (1)

1	Date of online publication	20.08.2024 at 6.00 PM
2	Document download start and end date	20.08.2024 to 12.09.2024 10.30 AM
3	Bid submission start and end date	20.08.2024 to 12.09.2024 10.30 AM
4	Physical submission of EMD, technical documents and cost of tender document etc.	On or before 05.30 PM on 12.09.2024
5	Date of opening of technical bid	13.09.2024 at 11.30 AM

(II) Objections/representation if any against the bidders will be entertained only within three days after publication/uploading of technical bid opening summary on net and thereafter that the date of opening of financial bid of technically qualified bidders will be published /uploaded on net.

3. Tender Details:-The tender Documents shall be uploaded in 2 cover:-

Cover 1:-Shall contain scanned copies of all "Technical Documents/Eligibility information".

Cover 2:- Shall contain "BOQ/Financial Bid", where supplier will quote his offer for each item.

(a) Submission of Original Documents: The bidders are required to submit (a) original demand draft towards the cost of bid document if any and (b) original bid security/Earnest Money deposit (EMD) and other technical documents in the Store &

Purchase section, NIT Hamirpur-177005 (HP) as specified in the key dates of **Sr. no.2** on tender opening dates & schedule, failing which the bids will be declared non-responsive. EMD in the form of DD/FDR must be attached with in favour of Director, NIT, Hamirpur (H.P) -177 005. The EMD should remain valid for a period of 90 days beyond the final bid validity period. EMD of unsuccessful bidders shall be returned after the expiry of the final bid validity or before the 30th day of the award of contract. The EMD of the successful bidder shall be released after successful execution of supply order.

4. BID OPENING DETAIL: - The bids shall be opened as per schedule specified in the key dates of **Sr. no.2.** in the store & Purchase section, NIT, Hamirpur by the authorized officer. In their interest the tenderer are advised to be present along with original documents at the time of opening of tenders. If the office happens to be closed on the date of opening of the bids as specified, the bids will be opened on the next working day at the same time & venue.
5. The bids shall remain valid for acceptance for a period of not less than 120 days after the deadline date for bid submission. Other details can be seen in the bidding documents. The officer inviting tender shall not be held liable for any delays due to system failure beyond its control. Even though the system will attempt notify the bidder of any bid updates. The Employer shall not be liable for any information not received by the bidder. It is the bidders responsibility to verify the website for the latest information related to the tender.
6. The copy of enlistment order & renewals, Copy of PAN issued by Income tax Department and copy of GST Certificate must accompany in the cover-1
7. The bidder preferably must have successfully supplied similar items in recent years. The bidders shall have to produce supporting documents giving date of award, date of commencement and completion from the concerned competent authority and should be included in cover-1
8. Destination: F.O.R. destination i.e. NIT, Hamirpur (HP) and the rates must include the charges for Packing, Forwarding, Freight, etc., if any.
9. Price/Rate: The price of items may be quoted in Indian rupees.
10. GST:- All the firms may invariably mention their GST/PAN numbers on tender failing which quotations may not be considered valid. Further, this Institution does not issue any Concessional form, so the GST applicable as per actual rates must be mentioned in the offer. In case GST is not mentioned, the rates shall be treated as inclusive of all taxes.
11. The bidders/firms have to supply the complete catalogue/brochure of the products to be supplied along with the Technical bid.
12. The technical bids will be evaluated on the basis of terms & conditions of the tender and details of the product to be supplied as per condition 11 of the tender notice. The committee reserves the right to reject any technical bid on the basis of technical specifications/catalogue/brochure submitted.
13. Conditional/ telegraphic tenders shall summarily be rejected.
14. For any clarifications bidders are requested to contact FI (Purchase), NIT Hamirpur at his E-mail ID i.e. fip@nith.ac.in.
15. The tender/bid shall be kept in a sealed envelope superscribed as "Tender for (Name of work and date of opening_____".
16. The jurisdiction of the law of court shall be at Hamirpur (HP).

20/8

FI (Purchase)

No: NIT/HMR/DoEE/S&PS/ 2024/2961—63

Dated: 20-08-2024

Copy forwarded to the following for information please:-

1. The HOD, DoEE, NIT, Hamirpur
2. Dr.Jiwanjot Singh, Assistant professor, DoEE, for information please.
3. The FI (CC), for getting the advertisement displayed in the Institute website for wider publicity under head: - **Supply and installation of Two Wheeler Electric Vehicle Working Model Training Setup in Open Learning Format for Electrical Engineering Department of NIT Hamirpur.**

20/3/24

FI (Purchase)

राष्ट्रीय प्रौद्योगिकी संस्थान हमीरपुर हमीरपुर177005-(हि .प्र.)
NATIONAL INSTITUTE OF TECHNOLOGY HAMIRPUR (H.P.)-177005
[An Institute of National Importance under Ministry of Education (शिक्षा मंत्रालय)]

NIT-SBD

Subject: - Supply & installation of Two Wheeler Electric Vehicle Working Model Training Setup in Open Learning Format for DoEE of NIT Hamirpur.

Sealed online E-Tender in two bid system are hereby invited by the undersigned for the supply of following items on behalf of the Director, NIT, Hamirpur from the Eligible/ Experienced/ Resourceful, manufacturer's dealer/authorized distributor etc. having experience in appropriate field and who have successfully completed works of similar type, so as to reach in the office of the undersigned as per date & time mentioned in the tender notice.

Sr. No.	Name of works/item	Qty/ No.	Earnest Money In Rs.	Time Limit
1	Supply and installation of Two Wheeler Electric Vehicle Working Model Training Setup in Open Learning Format For detailed specifications etc please see below	1	Nil	60 days

Item Name: Two Wheeler Electric Vehicle Working Model Training Setup in Open Learning Format for Education, Training & Research.

1	**2 W Electric Vehicle Working Model Training Setup in open learning Format.** EV Two-wheeler Chassis: • Open Chassis – minimum 1000W or more, • BLDC Hub Motor – 60V, 550 RPM approx.. • BLDC Motor Controller: Sinewave, 60V, 35A, • Power: Rated: 1200-Watt, Peak Power: 2400W approx.. • DC - DC Convertor - 48V – 12V, 15 Amp • 60V, 20Ah LFP Battery (minimum) or more with Charger, • Range: 50Km • Max. Speed: 25km/Hr • Charging time: 3-4 Hours, Auto Cutoff • Brake: Front: Hydraulic Disc Brake, Rear: Drum • Anti-Theft Device Fitted • IP Rating: IP65 suitable with Harness, • Lighting, • Indicator, • Horn, • Circuit Breaker, • Hand Throttle etc. This setup will be assembled/ installed on actual original vehicle chassis and mounted on Aluminum Extrusion 40x40 mm approx. Profile stand along with Fault simulation switches and working & connection wiring diagram chart mounted on it, the vehicle chassis will be in Open Format for learning & experimentation purpose. Setup should include functionalities for designing power supplies and motor drives, simulating power electronics and motor drive systems with analog and digital control, and automatically generating embedded C code for TI microcontroller or similar hardware for EV two wheeler. It should: • Design LLC resonant power supplies automatically for a given input specification with minimum effort • Design buck, boost, and flyback power supplies automatically with peak current mode control with minimum effort. Implement control in both control block and PWM IC hardware for easier implementation. • Design common-mode and differential-mode EMI filters of power converter and motor drive systems automatically and with minimum effort based on EMI noise levels and required EMI	01

standards.

- Design motor drive systems with current controller and speed/torque controller determined automatically.
- Design HEV (Hybrid Electric Vehicle) and PHEV (Plug-in Hybrid Electric Vehicle) powertrain systems with current controller, speed/torque controller, and voltage controller determined automatically.
- Simulate power converter systems and motor drive systems with control implementation in s-domain block diagram, z-domain block diagram, op. amp. circuit, custom C code, or VHDL or Verilog code.
- Provide integrated models to simulate power converters with different levels of fidelity based on simulation needs.
- Provide the capability to simulate magnetics of any structures.
- Simulate power converter transient and conducted EMI of power electronics and motor drive systems, including effect of cables.
- Calculate power converter losses with devices from different manufacturers. Provide the capability to capture semiconductor device datasheet information graphically.
- Calculate inductor losses based on inductor structure and magnetic materials.
- Provide the capability to run simulation in scripts so that a simulation run of hundreds or thousands of simulations can be automated.
- Provide the capability to generate efficiency maps of power converter and motor drive systems.
- Generate embedded C code automatically for TI microcontroller or similar hardware. Provide the capability to simulate the schematic before code generation.
- Provide the function to visualize waveforms and modify parameters of TI microcontroller code in real time for easy debugging.
- Provide PIL (Processor-In-the-Loop) simulation with the power stage in the tool and the control stage in the actual control hardware.
- Provide integrated environment to run SPICE simulation (e.g. LTspice) through co-simulation link.
- Provide support to VHDL and Verilog code through co-simulation link with tool ModelSim/Questa.
- Provide FMI interface to link with FMI supported tool.

Target Hardware Support:

- Create embedded C code automatically for TI microcontroller hardware. Provide an opportunity to simulate the schematic prior to code creation.
- Power Supply Design features
- Power converter and inductor losses should be evaluated in the tool tool .
- The tool should have the capability of performing AC analysis on the switching models directly.
- The tool should have the capability of including the digital delay directly to the design in the z-domain.
- The tool should contain the library of PWM control ICs for a full power supply simulation.
- The tool should determine the optimal magnetics ratio, quality factor, operating frequency, etc., for user design needs.
- Motor Drive Design features
- The tool should provide Motor Control Design Suite to implement a sensored or sensorless PMSM or induction machine drive.
- The tool should contain comprehensive electric machine library including PMSM model with the effect of spatial harmonics and saturation.

The tool should have the capability to easily link with JMAG and import JMAG motor design parameters to add more realism to your motor drive simulations.

EMI & Filter Design features

- The tool should have the capability to
- Simulate a realistic switch transition with the level 2 models
- Include parasitic inductance and coupling capacitance without causing simulation convergence or numerical issues
- Overlay an EMI standard and make use of the automated filter design tool to greatly reduce your time to market.

Digital Control Implementation features

- The tool should provide interface in a way that
- Users can design control directly in the z-domain with a full suite of discrete elements
- C code should be automatically generated from the schematic for seamless implementation on a supported TI C2000 DSP.
- The automatic embedded code generation should have the capability to provide a true Rapid Control Prototyping workflow with either floating point or IQmath fixed point code

Wide Band Gap Devices (SIC & GAN) features

- The tool should have the capability of evaluating the benefits of SiC/ GaN and comparing with traditional devices.
- The software should have the availability of thermal loss models specifically for WBG operating characteristics along with novel WBG SPICE models which feature more robust

	simulation performance than standard behavioral models etc.	

Note:

- Installation, commissioning & training for all the supplied items should be done and demonstrated onsite at NIT Hamirpur.
- Vendor participating will be responsible for the interfacing of the hardware with software i.e. complete integration & hardware plus software training has to be provided by the vendor.
- Vendor quoting must be the OEM or should have bid-specific OEM authorization for the quoted items.
- All hardware items must have standard one year OEM warranty with free updates, updates & upgrades during the warranty period.
- Software licenses must be fully featured (Industrial Grade) Perpetual Academic Research Licenses, Student Edition licenses with limited capabilities or features will not be considered.
- Vendors participating may be called for online / onsite technical presentation with demo unit for product verification purposes.

TERMS AND CONDITIONS:-

1. **Validity**: Minimum validity of the quotation will be 03 months from the date of opening of the quotation/tenders.
2. **Time Limit:** - The firm/supplier has to the supply and install the equipments within 60 days from the date of the award letter.
3. **Guarantee/warranty**: - The supplier has to provide equipment guarantee/warranty supplied for 01 year from the date of successful installation of the equipment supplied. (Certificate of the same to be given by the supplier)
4. **Demonstration & Training**:- The supplier will have to demonstrate and impart training to concerned users at NIT, Hamirpur after successful supply & installation. (Certificate of the same to be given by the concerned user/indenter).
5. **EMD**: **EMD in the form of DD/FDR /Bank Guarantee must be attached in favour of Director, NIT, Hamirpur (H.P) -177 005.** The EMD should be remained valid for a period of 120 days beyond the final bid validity period. EMD of unsuccessful bidders shall be returned after the expiry of the final bid validity or before the 30th day of the award of contract. The EMD of the successful bidder shall be released only after submission of 3 % **Performance bank Guarantee** which should be valid till expiry of warranty period. EMD/PBG exemption is permissible as per Govt. rules.
6. **Make in India preference**:- NIT Hamirpur shall compare all substantially responsive bids to determine the lowest evaluated bid. The Institute is following and abide with the revised Public Procurement (Preference to Make in India), Order No. P- 45021/2/2017 – PP (BE-II) dated 16.09.20 issued by DPIIT, Ministry of Commerce and Industry, Govt. of India & subsequent instructions of Ministry. Accordingly, preference will be given the make in India products while evaluating the bids. However, it is sole responsibility of the bidder(s) to specify the product quoted by them is of Make in India along with respective documentary evidence in the technical bid itself.
7. **Technical Evaluation**:- Technical evaluation of the participating firms will be done strictly on the basis of catalogues/brochures/literature/technical details of the product to be supplied along with relevant experience & fully complying all the terms & conditions of the SBD & tender notice. **It is mandatorily to physically submit the technical literature/catalogue of the product to be supplied along with make & model no. failing which the technical bid of the participating bidder will be straightforward rejected.** NIT Hamirpur also reserves the right to seek clarification from any of the participating firm during technical evaluation. The participating bidder has to submit undertaking that they fully complies to our above-mentioned technical specifications.
8. **Destination**: F.O.R. destination i.e. NIT, Hamirpur (HP) and the rates must be quoted inclusive of all taxes and charges.

9. **Penalty**: In case the firm/vendor fails to supply the equipments within the stipulated period penalty without assigning any reasons @ 1/2% (half percent) of the total value of the item covered in order as penalty per day subject to a maximum of 5% (five percent) will be imposed unless extension is obtained in writing from the office on valid ground before expiry of delivery period
10. **Price/Rate**: The price of equipment/items may be quoted as per BOQ clearly mentioning the Basic rate & GST in the specified columns of BOQ in Indian rupees. **Tender will be awarded to the participating bidder who will be lowest in terms of total of all items**
11. **GST:** - All the firms may invariably mention their GST/PAN numbers on quotation/tender failing which quotations may not be considered valid. Further, this Institution does not issue any C/D Concessional form, so the GST applicable as per actual rates must be mentioned in the offer. In case GST is not mentioned, the rates shall be treated as inclusive of all taxes.
12. **NIT/NIQ Opening**: Representative of the firm may be present at the time of opening of the Quotations, if it wishes.
13. **Payment:** 100% payment shall be made immediately after receipt of material in good condition and successful installation of the same.(Certificate of the same to be given by the indenter/inspection committee NIT, Hamirpur)
14. **Right of Acceptance/Rejection**: Right of acceptance and rejection of any tender/quotation in part or full without assigning any reason are reserved with the institution authorities. The number of items to be purchased could be increased or decreased depending on the requirement of end user.
15. In case of any dispute the jurisdiction of Hamirpur (HP) Courts shall apply.For any clarifications please contact:- Dr.Jiwanjot Singh (Mobile 9872581018)

2/8/24

FI (Purchase)