

 <p>IIT PALAKKAD</p>	<p>भारतीयप्रौद्योगिकीसंस्थानपालक्काड Indian Institute of Technology Palakkad अहलिया एकीकृत कैम्पस, कोझिपारा Ahalia Integrated Campus, Kozhipara पालक्काड- 678557 Palakkad – 678 557</p>	<p>दूरभाषसंख्या/ Phone no: 04923 – 226 522/586</p> <p>ईमेल/ Email : purchase@iitpkd.ac.in</p>
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Prof. Job Kurian
Registrar i/c

Date : 23.07.2018

Open Tender No: IITPKD/PHY/JB/024/2018

Due Date: 13.08.2018 @ 3.00 PM

Dear Sir/Madam,

On behalf of the **Indian Institute of Technology, Temporary campus, Palakkad, Quotations are invited for the following items.** The Specifications are given in the Annexure.

Part A	Hall Effect Set – Up
Part B	Study of Dia-, Para-, Ferro- Magnetism in an inhomogeneous magnetic field
Part C	Physical Quantity Measurement System (PQMS)

Technical bid Opening : Technical bid will be opened on 13.08.2018 at 3.15 PM in the conference room, Academic Block, IIT Palakkad

Instructions to the Bidder

- (i) **Preparation of Bids:** - The tenders should be submitted **under two-bid system (i.e.) Technical bid and Financial bid in separate envelopes.** The technical bid should consist of all technical details along with commercial terms and conditions. No prices should be included in technical bid. Financial Bid should indicate item – wise prices for the items mentioned in the technical bid. The technical and the financial bids should be put in separate covers and sealed. Both sealed covers should be put into a bigger cover. **Bids must either be spiral bound / stapled together. No loose sheets will be accepted. All pages must be numbered.**
- (ii) The Quotations duly sealed and superscribed on the envelope **with the reference No. and due date, should be addressed to the undersigned so as to reach on or before the due date stipulated above.**
- (iii) **Delivery of the tender:** - The tender shall be sent to the below-mentioned address either by post or by courier so as to reach this office before the due date and time specified in the Schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule. **The tender box is kept in the office of the Academic Block, IIT Palakkad, Ahalia Integrated Campus, Kozhipara, Palakkad-678 557.**

- (iv) **Opening of the tender:** - The offer/Bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and will be examined by a technical committee which will decide the suitability of the bid as per our specifications and requirements. The bidders will be invited for opening of Technical bids. **The Bidder's representative should carry authorization letter from their company empowering them to participate in the Pre-bid and tender opening meetings.** In respect of opening of financial bid, those bidders who are technically qualified only will be called.
- (v) **Prices:** - The price should be quoted in nett per unit (after breakup) and must include all packing and delivery charges indicated separately for each item. **The price indicated should be CIF/CIP Kochi. The Clearance and transportation of all the equipment to IIT Palakkad is the responsibility of the bidder or its agencies. The associated cost should be quoted separately in the financial bid.** The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. The price should be quoted without custom duty. **The custom duty will be paid at concessional rate against duty exemption certificate.**
- (vi) **Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in Tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. **Terms of Delivery:** - The item should be supplied to our Institute as per Purchase order. The installation and commissioning should be completed as specified by us in the attached schedule.
- (vii) **Acceptance & Rejection:** IIT Palakkad reserves the full right to accept / reject any tender at **any** stage without assigning any reason.

Yours sincerely,

Registrar, IIT Palakkad

SCHEDULE

Important Conditions:

1. The due date for the submission of the tender is **13.08.2018 at 3.00 PM**
2. The offers / bids should be submitted in two-bids systems (i.e.) Technical bid and financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes (separately), transportation, packing & forwarding charges, installation, guarantee, payment terms, pricing terms etc. The Technical bid and financial bid should be put in separate covers **superscribed clearly as “Technical Bid” and “Financial bid”** and sealed. Both the sealed covers should be put in a bigger cover. Open Tender for **“Hall Effect Set-up, Study of Dia-, Para-, ferro-magnetism in an inhomogeneous magnetic field and Physical quantity measurement system ”** should be written on the left side of the Outer bigger cover and sealed.
3. **The bidder may quote for one or more items (Part A, Part B, Part C). Technical and Financial bid for each part must be enclosed in separate envelopes. EMD for each part should be enclosed in the respective financial bid. All the financial and technical bids must be put in one big envelope and delivered to the purchase section. The evaluation will be done for each part separately and purchase order will be given to the technically qualified bidder, who quoted the lowest price for the respective part. For each of the parts the technical evaluation will be done based on the mandatory requirements for that part mentioned in the specifications.**
4. **EMD: -EMD should be at 2% (two percent) of the tender value quoted by the bidder.** The EMD should be enclosed with the financial bid which will not be opened for Technical evaluation. **Enclosing the EMD in the Technical bid will automatically DISQUALIFY the tenderer.** EMD should be in the form of DD in favour of **“Indian Institute of Technology Palakkad” and payable at Palakkad**. The tender without EMD would be considered as UNSOLICITED and will be REJECTED. Photo/FAX copies of the Demand Draft/Banker’s pay orders will not be accepted. No interest will be paid for the EMD and the EMD will be refunded to the successful bidder on receipt of Performance Security.
5. **Performance Security:-** The successful bidder will be asked to submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD or FD Receipt from the commercial bank or Bank Guarantee from any nationalized bank of India. **Only after submission of Performance Security, Purchase Order/Work Order will be released / L.C will be opened.**
6. **Performance Security in the form of Bank Guarantee:-** In case the successful bidder is a foreign company and wishes to submit Performance Security in the form of Bank Guarantee,

the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

7. The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

If an Indian agent is involved, the following documents must be enclosed:

- Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
 - Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
8. The offer/bids should be sent only for a system or equipment that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
 9. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.
 10. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
 11. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
 12. **Delivery Schedule:-** The tenderer should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
 13. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
 14. **Payment:-** No Advance payment will be made for Indigenous purchase. 100% Payment after supply and successful installation and commissioning and certification by the end user. In case of import supplies the payment will be made only through **100% Letter of Credit i.e. (50% payment will be released against shipping documents and 50% after successful installation and meeting acceptance criteria wherever the installation is being done).**
 15. **On-site Installation:** - The equipment or machinery has to be installed and commissioned by the successful bidder within one week from the date of receipt of the **item at site of IIT Palakkad.**

16. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately. (For more details please refer our Technical Specifications).
17. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
18. **Loading and unloading charges will be borne by the bidder/Supplier.**
19. **Acceptance and Rejection:** - IIT Palakkad has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
20. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**
21. **Disputes and Jurisdiction:** - Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Palakkad in Kerala.
22. All Amendments, time extension, clarifications etc., will be uploaded on the institute website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.
23. **Relocation / Installation :** The Supplier have to reinstall the instrument at the new campus free of cost.

Acknowledgement:- It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

Technical Specifications for the procurement of

(1) Hall effect set-up for B.Tech First Year Physics Lab

(2) Study of Dia-, para-, ferro- magnetism in an inhomogeneous magnetic field for B. Tech First Year Physics Lab

(3) Physical Quantity Measurement System (PQMS) as a part of Laboratory Teaching Activities for Masters and Ph.D. students:

Technical Terms:

The bidder may quote for one or more items (Part A, Part B, Part C). Technical and Financial bid for each part must be enclosed in separate envelopes. EMD for each part should be enclosed in the respective financial bid. All the financial and technical bids must be put in one big envelope and delivered to the purchase section. The evaluation will be done for each part separately and purchase order will be given to the technically qualified bidder, who quoted the lowest price for the respective part. For each of the parts the technical evaluation will be done based on the mandatory requirements for that part mentioned in the specifications.

Equipment	Technical Specification
Part - A (1) Hall effect set up for metals and semiconductors	I) Constant current source with Current Display : 0-20 mA DC or better Voltage Display : <u>0+200mV@0.1mV</u> or better Resolution : 10 micro ampere or better Current Adjust : 10-turns potential meter or better Power : 220V \pm 10%, 50 Hz AC or better Display : 3½ digit LED II) Power Supply Voltage : 0-20V DC (or better)continuously variable & stabilized Voltage display : 3½ digit LED Ripple : Less than 25mV Overload : Current limiting protection Current : 5 A continuously variable, or better 10% to full rating Current display : 3½ digit LED Working voltage : 230V AC, 50 Hz single phase III) Electromagnet arrangement Coils : 500 turns. Coil Current : 8.5Amp (Max.) Core material : Ferromagnetic. IV) DIGITAL MICROVOLTMETER Operating voltage : 230V, 50Hz

<p>Part - B (2) Dia-, para-, ferro-magnetic materials in inhomogeneous field</p>	<p>Operating range : 0-20mV, 0-200mV, 0-2000mV, 0-2V Accuracy : $\pm 0.01\text{mV}$ or better least count : 0.001mV or better</p> <p>V) DIGITAL GAUSS METER DIGITAL GAUSS METER Range : 200 Gauss & 2 k Gauss Resolution : 0.1Gauss at 0 - 200 Gauss Offset : By Potentiometer to set ZERO Display : $3\frac{1}{2}$ Digit LED Input Voltage : 220 V, $\pm 5\%$, 50 Hz AC Axial Hall Probe</p> <p>VI) METALLIC SAMPLE: TUNGSTEN / SILVER Current : approx. 20 A DC Magnetic field : 1000 ... 6000 gauss Thickness : 5×10^{-5} m Dimensions : Appropriate for the apparatus quoted Stand rod : Appropriate for the apparatus quoted. Material : Silver, Tungsten</p> <p>VII) Semiconducting probe Sample: GE CRYSTAL PCB Crystal : Ge Wafer, P type Crystal Size : $6 \times 7 \times 0.5\text{mm}^3$ (LxWxThickness) Resistivity : 1~ 10 ohm-cm Orientation : $\langle 100 \rangle$</p> <p>VII) All other accessories for the operation of the equipments including but not limited to power cords, flexible plug leads, screw drivers etc should be included.</p> <p>To demonstrate dia-para-ferro magnetism in an inhomogeneous magnetic field.</p> <hr/>
	<p>I) POWER SUPPLY Voltage : 0-30V (or better) DC continuously variable & stabilized Voltage display : $3\frac{1}{2}$ digit LED Ripple : Less than 25mV Overload : Current limiting protection Current : 10 A continuously variable or better , 10% to full rating Current display : $3\frac{1}{2}$ digit LED</p>

<p>Part - C (3) Electrical Transport Measurement Set-up (Physical Quantity Measurement System)</p>	<p>Working voltage : 230V AC, 50 Hz single phase</p> <p>II)ELECTROMAGNET Coils : 500 turns. Coil Current : 8.5Amp (Max.) Connection : 4mm safety socket. U Core : 150x130mm²(LxH), 40x40mm² cross section. Pole piece : 40x40mm² cross section with pointed attachment pair Core material : Ferromagnetic. Bore piece : Iron with 5mm graduated scale Ventilation on three sides of coil to protect from overheating.</p> <p>III) SAMPLES: Bi, Ni, Al</p> <p>IV) All other accessories for the operation of the equipments including but not limited to power cords, flexible plug leads, screw drivers, attachment assemblies, etc should be included.</p> <p>-----</p> <p>Cryostat with (1) a complete set-up for evacuation; flushing (with an exchange gas) to access a temperature range 80-450K (2) temperature control with a resolution of 0.01K and stability (in the isothermal mode) better than ± 0.1 K. The system should be capable of bipolar ramp rates upto 10 K/min in steps of 0.1 K/min.</p> <p>(2) I-V source and measurement units for 2-/4-probe DC electrical transport property measurements in the range of 10 micro-ohm or lower to 100 Tera-ohm or better. The system should allow I-V measurements in different measurement configuration easily like two probe, 3 -probe, 4 probe local and 4-probe non-local measurement geometries. All I and V measurements should be at least 6½ digit. All set-point resolutions must be better than 0.05 % of full-scale. The following resistance measurement ranges should be supported.</p> <p>a) 10 micro ohms or lower to 10 Mega Ohms (conductors) : Using a programmable current source (1uA to 10mA or better) and nano-voltmeter (10nV to 10V or better).</p> <p>b) 1 milli-ohms to 1 Giga (generic) : Using selectable current/voltage source (1uA to 10mA or better, 1mV to 10V or better) and meter (1nA to 10mA or better, 1uV to 10V or better).</p> <p>c) 1 Mega to 100 Tera (insulators) Using programmable voltage source (1mV to 100V or better) and pico-ammeter (0.1pA to 1uA or better).</p> <p>3 AC-susceptibility ($\chi-T$) measurement : Lock-in amplifier with operating frequency range 10Hz – 10 KHz, an integration time of at least 1 sec, pre- and post-amp gain(s) of 1, 10, 100 and capable of</p>
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	<p>measuring both phase and amplitude, and includes a built in reference source. Sample positioner for cancellation of thermal drift, with provision for stall detection.</p> <p>(4) Data acquisition and control software, which automates recording of time domain voltage,current and resistance data along with I-V, R-T and χ-T measurements under linear and stepped temperature profile mode, allows easy control of all experimental parameters, supports real time recording and plotting of physical quantities and runs on Linux or Windows.</p> <p>(5) Magneto-resistance; Hall Coefficient Measurement Unit for the temperature range of 80-450K with a bipolar H-field in the range of 0 - 1000 gauss or better using an air-core electro-magnet, with a set-point resolution better than 0.05 % of full-scale, with a compatible Gaussmeter with resolution better than 1 Gauss and inclusive of a 6 Amp power supply</p> <p>(6) All accessories required to run the system such as rotary pump, Pirani gauge, branded computer (i3 processor or better, 4GB RAM, 500GB hard disk), helium cylinder and regulator,liquid nitrogen dewar (min capacity 3 litres).</p>
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Terms and Conditions

1. Manuals: Operation and service manual in English (electronic and hard copy) should be provided with all the equipment and components. In the technical details, specify clearly about the kind of service/maintenance required for the system.
2. Installation and training: The complete training of all components and options should be demonstrated to maximum specification and free for IIT Palakkad user staff/students members, onsite.
3. Enclose pre-installation guide for the details on electrical power, space and other for all components and essential accessories.
4. The quote should specify the model number of the item clearly.
5. Guarantee / Warranty and after sales technical support The tender must be quoted with three years on-site comprehensive Warranty/Guarantee commencing from the date of complete and satisfactory installation of the equipment against the defect of any manufacturing, workmanship and poor quality of the components. The bidder also must agree and issue a certificate stating that technical query will be responded within 2 working days and the support will be provided within 7 working days from the date of reporting of the technical failure for down time free operation of the instrument.

Who can participate in the bid?

Only those bidders fulfilling the following criteria should respond to the tender.

1. The bidder should be either an Original Equipment Manufacturer (OEM) or should be an authorized representative (provide documentary proof) of an OEM.
2. The bidder should be a company registered under the Companies Act, 1956/2013 OR a Limited Liability Partnership /a registered partnership firm OR a sole-proprietorship entity. Appropriate Registration incorporation certificate must be submitted.
3. The bidder must be in existence in the business for a minimum period of 5 previous financial years (before or since 01 April 2013). Documentary evidences of experience must be provided.
4. The bidder should have implemented orders exceeding INR 5 Lakhs during previous three financial years (01 April 2014 – 31 March 2017). Copies of the most recent purchase orders and certificates of successful implementation must be included. Copies of financial statements or evidence of turnover must be furnished.
5. The bidder should have documentary evidence of having supplied at least 2 No. of the equipment to a Centrally Funded Technical Institution (e.g., IIT, NIT, IISc, IISER, etc.) in the recent past. The bidder must provide a certificate of satisfactory performance of the supplied equipment from the institute to which they have recently supplied. Contact details of the faculty-in-charge of the installed setup must also be provided.
6. Compliance sheet for the technical specification and OEM Brochure have to be attached along with the Technical bid. Vendor has to fill the compliance sheet and mention page number or reference number in OEM brochure. Unfilled / partially filled sheets lead to disqualification.
7. The bidder must provide detailed specification of each equipment/item. Model numbers, data sheets and brochures must be included for all equipment quoted, system and all accessories. Specifications corresponding to quoted model number must be available publicly via OEM's website for scrutiny. If not, bid can be disqualified on technical grounds.
- 8. Service and warranty for a minimum period of three years for the equipment must be provided. AMC for additional three years must be quoted separately.**