



# भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद

धनबाद, झारखण्ड, भारत, पिन-826004

(मानव संसाधन विकास 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 H.R.D., Govt. of India)

STORES & PURCHASE SECTION Phone:(0326) 2235678 || Email : purchase@iitism.ac.in || Website : www.iitism.ac.in

No. App Phy-INS-220 -2018-19

Date: September 06, 2018

## NOTICE INVITING TENDER

**Subject: Supply & Installation of Laboratory equipments for under graduate Laboratory for B. Tech Common Course.**

Indian Institute of Technology (Indian School of Mines),Dhanbad invites quotations for the following to be supplied and delivered in Applied Physics Department.

S No	Full Description of items/ store	Qty	Delivery
1.	To calculate the band gap (Eg) of a semiconductor by measuring the resistivity at different temperature.	02	At the Earliest
2.	To determine the thermal conductivity (K) of a bad conductor by Lee's method.	02	
3.	(A) To measure the diameter (d) of a circular aperture using Fresnel's diffraction by using He-Ne laser (B) To Determine the Brewster angle and refractive index of a Reflecting Material (Glass) by using He-Ne laser	02	
4.	Measurement of the Coefficient of Viscosity of water by Poiseuille's Method. (Specifications attached at separate sheet)	02	

### Tender Schedule

Particulars	Date & Time
Tender Costs	Rs 590.00 (Rupees Five Hundred Ninety Only) <b>Pl. see Terms &amp; condition No. 03</b>
Bid Security or Earnest money deposit	Rs. 9,500.00 (Rupees Nine Thousand Five hundred Only)
Last date and time for submission of tenders	03.10.2018 at 3:00 P.M.
Date and time of opening of tenders	03.10.2018 at 4.00 P.M.

- You are requested to quote your lowest rates for the supply of above items in the attached format for Financial Bid (Annexure – II)
- You may send your representative in the office of the undersigned at the scheduled date and time of opening of tender.
- Tender should be submitted in sealed cover only superscribed with Enquiry No. and Due date at the following address only:

*The Assistant Registrar (P&S)  
Indian Institute of Technology (Indian School of Mines),  
Dhanbad – 826 004 Jharkhand*



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## Terms & Conditions

- 1) The rates should be quoted for each item separately.
- 2) Conditional offer will not be accepted.
- 3) **Tender Cost:** Tender cost shall be paid through SB collect only, tender cost payments through other modes viz Cash/DD/MEFT/RTGS etc, shall not be accepted. Tender cost is non-refundable and non-transferable. Venders/contractors/suppliers can pay the Tender Cost through the link: <https://www.onlinesbi.com/prelogin/icollecthome.htm?corpID=272342> the receipt of tender cost must be attached with the Tender documents, **without receipt tender will be rejected.**
- 4) IIT (ISM) does not issue any Form 'C' or 'D' towards sales tax concessional rate. Hence, full rate of GST applicable should be quoted.
- 5) **Bid Security or Earnest money deposit (EMD):** EMD should be submitted in form of A/c payee demand draft drawn in favor of Registrar, IIT (ISM) Dhanbad and payable at any other bank/branch located in Dhanbad. It should not be clubbed with tender cost EMD of unsuccessful bidder will be refunded only after placement of purchase order on the successful bidder.
- 6) **Educational discount,** if any, should be clearly mentioned.
- 7) You are requested to submit your quotation strictly as per the specifications mentioned in the NIT.
- 8) Your tender must be valid for **minimum 90 days** from the date of opening of tender.
- 9) Please mention warranty/ guarantee in your offer clearly. Material/ equipment to be supplied must have minimum warranty/guarantee of **24 months** from the date of installation
- 10) **Performance Security/Performance Bank Guarantee:** Performance Security has to be submitted from the successful bidder. Performance Security should be 10% of the ordered value. Performance Security may be furnished in the form of Bank Guarantee/Demand Draft from any Nationalized Bank and. Performance security should remain valid for a period of two months beyond the date of completion of all contractual obligations of the successful bidder(s). No interest will be payable by IIT (ISM) Dhanbad on the Performance Security deposited. In case the contractor fails to provide satisfactory service, the Performance Security submitted by the bidder(s) is liable to be forfeited. An undertaking to this is to be submitted.
- 11) Each page in the bid document must be numbered properly and duly signed & sealed by the bidder on every page of the bid.
- 12) **The items/ materials shall be required to be delivered at Applied Physics, Department/ Section IIT (ISM) Dhanbad** at the risk and cost of the tenderer.
- 13) Unloading and installation shall be the complete responsibility of the supplier.
- 14) The stores are required to be preferably delivered within 30 days. Late delivery may not be accepted.
- 15) The items offered should be of good quality confirming to BIS standards, wherever applicable.
- 16) **Advance payment or part payment or part shipment is not admissible.** Payment shall normally be made within 4-6 weeks subject to receipt and acceptance & installation (as per Purchase Order Terms) of the ordered materials/items and submission of original bills/invoice, challan, installation report, warranty certificate etc, and PBG followed by it confirmation.
- 17) In the event date on which the tender is opened for acceptance is declared to be a holiday, the tenders shall be deemed to remain open for acceptance till the next working day. IIT(ISM) reserves right to extend the date & time of submission/opening of the quotations.
- 18) Please send your offer by Regd.Post/ Speed Post/ Courier along with Courier receipt. Tender/ quotation will be received during IIT (ISM) 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.
- 19) Any other information that you may like to obtain, you are free to contact IIT (ISM) before submission of tender.
- 20) IIT (ISM) reserves the right to accept and/or to reject any/ all tenders without assigning any reason.

Assistant Registrar



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## Annexure - 1

### Specification of Experimental setup for B.Tech. (Common Lab)

#### 1. Experiment Title:

To calculate the band gap ( $E_g$ ) of a Semiconductor by measuring the resistivity at different temperatures.

#### Equipments Specifications:

- (a) Four Probe Arrangement (Spring Type)
- (b) Oven : Minimum upto 200 °C
- (c) Sample : Ge Crystal N or P type
- (d) Thermometer : 0-200°C
- (e) Digital Four Probe Set-up Model Complete in all aspects-02
  - (i) Multirange Electronic Millivoltmeter
    - Range : X1 (0-200mV) and X10 (0-2V)
    - Resolution : 100  $\mu$ V at x 1 range
    - Input Impedance : 1 M ohm
    - Accuracy :  $\pm 0.2\%$  of the reading +1 digit
    - Display : 3 ½ digit, 7 segments LED
    - Special Feature : with auto polarity and decimal indication.
  - (ii) Constant Current Source
    - Current : 0-20 mA or as required
    - Open circuit voltage : 18 V
    - Load Regulation : 0.03% for no load to full load
    - Line Regulation : 0.05% for 10% main variation
    - Accuracy :  $\pm 0.25\%$  of the reading+1 digit
    - Power : 220 V  $\pm 10\%$  , 50 Hz
  - (iii) Oven power Supply : To provide suitable voltage for the oven with provision for L & H rates of heating.

**\*Any other items which are essentially required for performing this experiment but not mentioned above may be included in the offer.**

**NOTE: System should be complete in all respect with manual and test results.**



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## **Specification of Experimental setup for B.Tech. (Common Lab)**

### **2. Experiment Title:**

To determine the Thermal Conductivity (K) of a bad conductor by Lee's method.

### **Equipments Specifications:**

Calorimeter vessel, 500 ml

Lee's and Charlton's Conductivity Apparatus (Brass) with sample (Bakelite), Jointless Steam

Boiler and two thermometer

Accessories required:

- (a) Screw Guage 1/20mm
- (b) Vernier Callipers 6" IME type with same blast coating for fine numbering
- (c) Digital Stop watch with LC 1 sec.
- (d) Hot Plate 1 Kw

**\*Any other items which are essentially required for performing this experiment but not mentioned above may be included in the offer.**

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## Specification of Experimental setup for B.Tech. (Common Lab)

### 3. Experiment Title:

#### A. To measure the diameter (d) of a circular aperture using Fresnel's diffraction by using He – Ne laser.

##### Equipments Specifications:

1. Circular Aperture with mount
2. Laser diode with built-in power supply and holder
3. X-Z long translation stage with 50 mm long micrometer in X-direction and thumb wheel in Z direction for fine adjustment suitable to fix on optical or plane table.
4. Slow motion translation stage with thumb wheel in up direction with slit holder suitable to fix on optical bench or plane table
5. Pin hole detector
6. Screen size 30 cm. X 10 cm
7. Digital Microammeter, Model DMA-02
  - a. Range : 10 $\mu$ A and 100 $\mu$ A full scale in 2 decade ranges with 100% over ranging.
  - b. Display : 3 ½ digit, 7-segment LED display with auto-polarity
  - c. Accuracy : + 0.25% + 1 digit.
  - d. Power : 220 V + 10%, 50 Hz
8. Optical bench 150 cm. long made of SS for easy alignment with suitable upright to mount items at (1) to (6) on bench.

#### B. To Determine The Brewster Angle and Refractive Index of a Reflecting Material (Glass) by using He – Ne laser

##### Equipments Specifications:

1. Circular table 0 – 360° fitted with slider at one arm and thumb wheel at other
2. Analyzer with vernier scale
3. Glass plate and mica plate
4. Silicon detector fitted on thumb wheel
5. Digital Microammeter, Model DMA-02
 

Range	: 20 $\mu$ A to 200 $\mu$ A full scale in 2 decade ranges
Display	: 3 ½ digit, 7-segment LED display with auto-polarity
Accuracy	: + 0.25% + 1 digit.
Power	: 220 V + 10%, 50 Hz



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## 6. Helium Neon Laser (Red) box type or Rod type with built-in power supply

Output power : 2 mW

Wavelength : 632.8nm (Red)

Mode : Randomly polarized

Operating voltage : 220V + 10%, 50 Hz.

## 7. Laser Stand: Rectangular shape with spring type levelling and Coarse and Fine control for height adjustment with suitable base.

**\*Any other items which are essentially required for performing this experiment but not mentioned above may be included in the offer.**

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## **Specification of Experimental setup for B.Tech. (Common Lab)**

### **4. Experiment Title:**

Measurement of the Coefficient of Viscosity of Water by Poiseuille's Method

### **Equipments Specifications:**

- i. Complete Viscosity set-up
- ii. Constant water level tank with stand
- iii. Rubber tube with pinch cork
- iv. Measuring cylinder ( 100 cc)
- v. One plastic tray
- vi. Capillary sample with wooden stand
- vii. Digital Stop watch with LC 1 sec.

**\*Any other items which are essentially required for performing this experiment but not mentioned above may be included in the offer.**

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Date: September 06, 2018

## Annexure - II

### Format for Financial Bid

NIT No.: App Phy-INS-220 -2018-19

Date:

Bidders Ref: No.

Date:

GSTIN No.:

**Subject:** Supply & Installation of Laboratory equipments for under graduate Laboratory.

Sl. No.	Full Description of Items with (HSN Code/SAC Code)	Qty.	Rate	Amount
			Packing & Forwarding (if any)	
			<b>Total</b>	
			GST	
			Freight (if any)	
			Installation (if any)	
Amount should be in figure as well as word			<b>Grand Total</b>	

### **Note:**

- 1) All the details must be provided as per prescribed format only
- 2) Prices quoted by the bidders should include GST, HSN Code, SAC Code, duties, livies, transportation cost and insurance costs etc. if any