



## Himachal Pradesh Technical University

(A State of Govt. University Established Under State Legislative Act-16 of 2010)

Village & PO Daruhi, Teh. & Distt. Hamirpur (H.P.) – 177001

Phone: 01972-224180, Fax: 01972-224150, www.himtu.ac.in

### Tender Notice

H.P. Technical University Hamirpur invites bids from eligible firms/Companies/Government agencies for the following:

Sr.No.	Tender No.	Nature of Job	Cost of Tender Document	Last date of receiving of bid in University office	Date and Time of Opening	
					Technical Bid	Financial bids of technically qualified bidders
1	05/2021	Physics Laboratory Equipments.	₹500/- (Non refundable)	08-04-2021 up to 12:00 Noon	08-04-2021 at 02:00 PM	08-04-2021 at 03:00 PM

Tender documents can be downloaded from the official website of University [www.himtu.ac.in](http://www.himtu.ac.in), and the cost of the tender has to be submitted in form of Demand draft in favour of **Finance Officer, HPTU, Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur Payable at Hamirpur, H.P. Pin 177001** with tender in a separate envelope along with technical bid. The tender document may also be purchased from the office of H.P. Technical University Hamirpur on any working day/hours. The detail of tender is available on the University website mentioned above.

Tender received after due date, time, without tender cost and without earnest money will be summarily rejected.

Purchase Officer  
Himachal Pradesh Technical University Hamirpur

# Himachal Pradesh Technical University Hamirpur-177001

Tender No. 05/2021

## TENDER DOCUMENT



### Providing and installation of Physics Laboratory Equipments

Cost of Tender Document	: ₹500/- (By Cash/ Demand draft)
Last date for the submission of tender document	: 08-04-2021 up to 12:00 Noon
Date of opening the Tender (Technical bid)	: 08-04-2021 upto 02:00 PM
Date of opening the Tender (Financial bid)	: 08-04-2021 at 03:00 PM

## Himachal Pradesh Technical University Hamirpur-177001

### Tender Call Notice

Sealed tenders are invited for providing and installation of Physics Laboratory Equipments for University Physics labs. Tender documents having terms & conditions, technical aspects and other details of work may be downloaded from University website [www.himtu.ac.in](http://www.himtu.ac.in) and applied along with D.D. of ₹500/- in favour of Finance Officer, HPTU, Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur Payable at Hamirpur, H.P. Pin 177001 or the tender documents may also be purchased from the office of H.P. Technical University Hamirpur on any working day/hours. Completed tender documents may be deposited in University till **08-04-2021 up to 12:00 Noon**. Technical bid shall be opened in the O/o Purchase Officer, Himachal Pradesh Technical University, Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur (H.P.) India, Pin 177001 on **08-04-2021 at 02:00 PM** in presence of tenderers or their authorized representative who may be presented at the time of opening of tenders. **Financial bids** of technically qualified bidders shall be opened on same day at **03:00 PM**.



Purchase Officer  
H.P. Technical University Hamirpur

## CHECK LIST OF ENCLOSURES

Please arrange documents in cover 'A' for technical bid as per enclosure number given below  
(Please write enclosure no. on the cover page of each document with ink)

Sr.No	Enclosure	Description
1.	Enclosure 1	Cost of tender form (Demand Draft of ₹500/-)
2.	Enclosure 2	Earnest money deposit EMD (Demand Draft of ₹50,000/-)
3.	Enclosure 3	Prescribed form of ANNEXURE-A duly filled, terms & conditions of tender and contract signed by tenderer with seal and signature on each page.
4.	Enclosure 4	List of organizations and supply orders of providing and installation of Physics Laboratory Equipments.
5.	Enclosure 5	Copy of registration number of the firm.
6.	Enclosure 6	Copy of the GST No. of the firm.
7.	Enclosure 7	Copy of the PAN No. and TAN No. of the firm.
8.	Enclosure 8	Audited balance sheet of the firm for the last three years.

1. **QUANTITY**

Tender is issued for providing and installation of Physics Laboratory Equipments, as per **Annexure-C & Annexure-D**. Purchase Officer, H.P. Technical University Hamirpur may increase or decrease the above mentioned quantity as per the actual requirement.

2. **DURATION**

This tender is valid for a period of **1 (one) year** from the date of award of work which can be extended subject to the satisfactory performance.

3. **ELIGIBILITY CRITERIA**

Only those firms having at least 3 years continuous experience of providing and installation of Physics Laboratory Equipments with annual turnover of at least ₹ 50,00,000/- in last 3 financial years shall eligible for participation.

4. **SUBMISSION OF BID**

Sealed Tender envelope should be superscribed " providing and installation of Physics Laboratory Equipments" containing two separate sealed envelopes COVER 'A' & COVER 'B' as prescribed herein after should be submitted to the **Purchase Officer, HPTU, Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur, H.P. Pin 177001** up to prescribed time.

5. Any bid received by Himachal Pradesh Technical University (HPTU) Hamirpur after the deadline for submission of bids prescribed in this document, will be summarily rejected. HPTU Hamirpur shall not be responsible for any postal delay or non-receipt/non-delivery of the documents. No further correspondence on this subject will be entertained.
6. Cover A should be addressed to the Purchase Officer, H.P. Technical University Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur, Himachal Pradesh, India, Pin 177001 and should be superscribed as

  
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- "Technical bid" and contain the following document:-
- (6.1) Cost of tender form i.e. D.D. of ₹500 /- in favour of Finance Officer, HPTU, Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur Payable at Hamirpur, H.P. Pin 177001
  - (6.2) Earnest money deposit i.e. D.D. of ₹50,000/- in favour of Finance Officer, HPTU, Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur Payable at Hamirpur, H.P. Pin 177001
  - (6.3) The tenderer shall attach a list of customers/organizations for whom they have providing and installation of Physics Laboratory Equipments along with a certified copy of supply orders from the organizations for support of the same for last three years.
  - (6.4) Enclose certified copy of document of the registration number of the firm.
  - (6.5) Enclose document of GST No. of the firm.
  - (6.6) Enclose certified copy of PAN and TAN Card/Certificate of the firm.

(Signatory' authority of tender should sign all enclosures in cover 'A' and each page of terms & conditions including Annexure-A).

**Note:**

- a) All attested documents must be submitted in Hindi or English Language. If the documents are not in Hindi or English, they should be translated in Hindi or English and must be submitted along with the copy of original document.
- b) Tender will be liable for outright rejection if:-
  - i. Any rates are disclosed in technical bid i.e. cover A
  - ii. Any discounts/special offers are made in technical bid i.e. cover A
7. Financial Bid duly filled in as given in Annexure-B giving the rates for quoted items in individual envelope should be sent in separate sealed cover hereinafter called, "COVER B". COVER- B should also be addressed to the Purchase Officer, H.P. Technical University Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur, Himachal Pradesh, India, Pin 177001 and should be superscribed "FINANCIAL BID". Signatory authority of Tender should sign each page of Financial Bid.
8. Financial Bid i.e. Cover B will be opened only for those tenderers who technically qualified/satisfy the standards laid down by the details furnished by the tenderer in COVER A, in compliance of terms & conditions of tender.
9. **PERIOD OF VALIDITY OF BIDS TO AWARD THE WORK:** Bids shall remain valid for **180** days from the date of submission of bids.
10. Any change in the constitution of the tenderer Firm/Company shall be notified forthwith by the contractor in writing to the Purchase Officer, H.P. Technical University Hamirpur and such change shall not relieve any former member of the Firm/Company from the liability



under the contract. No new partner/partners shall be accepted in the Firm by the contractor in respect of the contract unless he/they agree to abide by all its terms and conditions and deposit a written agreement to this effect with the Purchase Officer, H.P. Technical University Hamirpur.

11. **EARNEST MONEY:** - Tender shall be accompanied by an earnest money of ₹50,000/- without which tenders will not be considered. The amount should be deposited in the form of demand draft in favour of Finance Officer, H.P. Technical University Hamirpur Village & PO Daruhi, Teh. & Distt. Hamirpur Payable at Hamirpur (H.P.). The earnest money of unsuccessful tenderer shall be refunded soon after finalization of tender.
12. **FORFEITURE OF EARNEST MONEY** The earnest money may be forfeited in the following cases:-
  - a. When tenderer withdraws or modifies the offer after opening of the tender but before acceptance of the tender.
  - b. When tenderer does not execute the offer agreement prescribed within the specified time.
  - c. When the tenderer does not deposit the security money after the order is given.
  - d. When he fails to commence the service as per the order within the time prescribed.
13. Tender form shall be typed or filled in ink. Tender filled in with pencil shall not be considered.
14. In case, it is noticed at any stage that any item supplied by the approved firm does not conform to the required standard, the supplier shall be liable to refund the payment thereof if received to H.P. Technical University Hamirpur. The supplier will not have any rightful claim to the payment of cost of substandard supplies which are consumed either in part or whole pending receipt of laboratory test. It may be noted that supply of substandard goods is an offence and the same will be dealt with in the manner prescribed under relevant laws.
15. **RATES:** Only net rates should be quoted. No separate free goods or cash discounts should be offered. Rates must be valid for a period of one year from the date of award of work.
  - a. Delivery should be made to H.P. Technical University Hamirpur, Village & PO Daruhi, Teh. & Distt. Hamirpur, Himachal Pradesh, Pin 177001. The University will pay no cartage or transportation charges hence the rates must be quoted accordingly.
  - b. Net rates must be offered only against the specified column of the items. The net rate must be inclusive of all charges by way of packing, forwarding, incidental of transit charge including transit insurance, octroi and any other levies, duties, charges etc. on the product except GST.
  - c. Excise duty or surcharge prevailing on the date of submission of the rate must be included in the net rate and should also be shown separately in the Financial Bid (Annexure-B). Prevailing rates of GST etc. should be mentioned explicitly. Taxes not mentioned will not be paid/reimbursed by this University. In the event of any subsequent variation (increase or decrease) in GST by the government (State of Central) the same will be modified accordingly.
  - d. Other statutory increase or decrease shall be agreed upon mutually between University and tenderer and revised rate shall be applicable to order received by



the tenderer on or subsequent to the date of such increase in government duty.

- e. The rates must be written both in words and figures in the financial bid (Annexure-B), in case of discrepancy between the prices quoted in words and in figures, lower of the two shall be considered. There should not be any errors and/or overwriting. Corrections if any should be made clearly and signed by the tenderer with date.
- f. No paper should be detached from the tender form.
- g. The tenderer shall sign with seal on every page of the tender form including Terms & Conditions in token of his acceptance of all the Terms & Conditions of the tender and return the same along with tender. In case of, non-receipt of terms and conditions duly signed with the tender form, the tender will be rejected.

#### 16. SECURITY DEPOSIT/PERFORMANCE SECURITY & AGREEMENT

- a. Firm whose offer is accepted will have to deposit a security deposit/performance security equal to **10% (Ten Percent)** of the total value of order in the form of an account payee Demand Draft or duly pledged Fixed Deposit or Bank Guarantee from a commercial Bank in favour of Finance Officer, H.P. Technical University Hamirpur Village & PO Daruhi, Teh. & Distt. Hamirpur Payable at (H.P.). EMD shall be refunded to the successful bidder on receipt of security deposit/performance security.
- b. Successful tenderer will have to execute an agreement on a Non Judicial Stamp Paper of Rs. 100/- in the prescribed form with the Purchase Officer, H.P. Technical University Hamirpur and deposit security/performance security money within 15 days from the award of work, failing which the Tender/Quotation will be rejected straightway. The security will be refunded after six months from the date of expiry of the contract or on the expiry of guarantee (if any), whichever is later. The University will pay no interest on security/Earnest money deposit.
- c. In case of breach of any terms and conditions of the contract or on unsatisfactory performance, the amount of security deposit/performance security can be forfeited by the University and decision of the university shall be final and binding on the tenderer. The expenses of completing and stamping the agreement shall be borne by the tenderer.

17. **SUPPLY ORDERS:** The supply order will be placed to the approved tenderer (and not Agents/Suppliers/Distributors etc.) through registered post. **The firm shall have to supply & install the Equipments within the period of one month** to the University from the date of issue of supply order.

18. Subletting or assigning contract to third party is prohibited. In case the tenderer violates this condition, Purchase Officer, H.P. Technical University Hamirpur shall be at liberty to place the contract elsewhere on the Tenderer's account and at his risk. The tenderer shall be liable for any loss or damage, which the H.P. Technical University Hamirpur may sustain in consequence or arising out of such replacement of the contract.

#### 19. PENALTY FOR DELAY

- a. The time specified for delivery in the supply order shall be deemed to be the essence of the contract and the successful Tenderer shall arrange supplies within the period on receipt of order form the University.
- b. In case of delay in the delivery period the penalty shall be made on the basis of following percentages of value of stores which the tenderer has supply:-





- i. Delay up to one-fourth period of the prescribed delivery - 2.5% of total order value.
    - ii. Delay exceeding one fourth but not exceeding half of the prescribed delivery period - 5% of total order value.
    - iii. Delay exceeding half but not exceeding three-fourth of the prescribed delivery period - 7.5% of total order value.
    - iv. Delay exceeding three-fourth of the prescribed period -10% of total order value.
  - c. Fraction of a day in reckoning the period of delay in supplies shall be eliminated if it is less than half a day.
  - d. The maximum amount of penalty shall be 10% of total order value.
  - e. If the tenderer firm requests for an extension of time in completion of contractual supply on account of occurrence of any circumstances beyond control of human being, he shall apply in writing to the authority, which has placed the supply order, for the same immediately on occurrence of the circumstances.
  - f. **If the tenderer is unable to complete the supply within the specified or extended period, the Purchase Officer shall be entitled to purchase the goods or any part thereof from elsewhere without notice to the tenderer on his (i.e., Tenderers) account and risk.** The tenderer shall be liable to pay any loss or damage which the University may sustain by reasons of such failure on the part of the tenderer. The tenderer shall not be entitled to any gain on such purchases made against default the recovery of such loss or damage shall be made from any sums accruing to the tenderer under this or any other contract with the government. If recovery is not possible from the bill and the demand, the recovery of such amount or sum due from the tenderer shall be made under the act or any other law for the time being in force.
  - g. **NOTE:** It is clarified that Purchase Officer, H.P. Technical University Hamirpur may, if necessary, resort to risk purchase without granting any extension as provided in above Condition.
20. All the stores supplied shall be of the best quality and conforming to the specifications laid down in the schedule attached to agreement. The decision of Purchase Officer, H.P. Technical University Hamirpur as to the quality of stores be final and binding upon the tenderer. In case any of the articles supplied are not found as per specification or declared sub-standard/spurious, they shall be liable to be rejected and any expenses of loss caused to the firm as a result of rejection of supplies shall be entirely at his account.
21. The tenderer must remove rejected articles from the destination where they lie within 30 days from the date of information of rejection. The officials will take reasonable care of such materials but will not be responsible for any loss or damage that may occur to while it is on their premises.
22. The tenderer shall be responsible for the proper packing and delivery of the material to the consignee.
23. No payment will be made for damage, or breakage or shortage, the tenderer shall make up the loss and shortage found at the checking of the materials by the consignee. No extra cost on such account shall be admissible.
24. The tender shall be evaluated item wise and awarded to the bidder having lowest rate.
25. **MODE OF PAYMENT:** The payment will be made through cheque/NEFT/RTGS 100% after the successfully completion of job within one month after the competition of



- installation.
26. All correspondence in this connection should be addressed to the Purchase Officer, H.P. Technical University Hamirpur, Distt. Hamirpur, Himachal Pradesh, India, Pin 177001. Technical question should be referred to the Purchase Officer, H.P. Technical University Hamirpur direct by correspondence or by personal contact.
  27. The quantity indicated in the tender is mere estimates and is intended to give an idea to the prospective tenderers to enable them to decide whether they will undertake to supply the article to this University on most competitive rates. The figures indicated in the tender do not constitute any commitment of the part of department to purchase any of the articles in the quantity shown therein against each or in any quantity whatsoever. It is further made clear that the University does not bind itself to purchase all or any quantity mentioned in the tender and no objection against the quantity of the indent of approved item being more or less than the approximate quantity will be entertained and shall not be acceptable as a ground for non-supply on the quantity indented.
  28. The Purchase Officer, H.P. Technical University Hamirpur will have the right to accept or rejection of all or any of the tender without giving any reason for the same.
  29. The Purchase Officer, H.P. Technical University Hamirpur can extend the original rate contract of the successful tenderer, subject to original Terms and Conditions.
  30. The Contract for the supply can be repudiated at any time by the Purchase Officer, H.P. Technical University Hamirpur if the supplies/services are not made to his satisfaction after giving an opportunity to the Tenderer of being heard and after reasons for repudiation being recorded by him in writing.
  31. Extra stipulation or any other condition contrary to the above Tender conditions are not acceptable and may render the tender liable to rejection.
  32. Legal proceeding if any arising out of the Tender shall have to be lodged in courts situated in Hamirpur (H.P.) only.
  33. The Purchase Officer, H.P. Technical University, Hamirpur can relax the terms and conditions in the exigency of the University work.



Purchase Officer  
H.P. Technical University Hamirpur

**Annexure-A**

**TECHNICAL BID (Cover A)**  
(To be submitted separately in sealed envelope)

1. Name of firm with complete address .....

Phone No

Fax No

E-mail

Web site

2. Name of Proprietor of the firm: .....

3. Year of establishment: .....

4. Registration No. of the firm .....

5. GST No. of the firm .....

6. PAN/TAN No. of the firm .....

7. Whether Govt. Agency/ Public Ltd./Pvt. Ltd.:-

8. Annual turnover in lac (please attach CA certified balance sheet):

	2017-18	2018-19	2019-20
Annual Turnover (in lac)			

9. Whether income tax payee (duly audited by the C.A./authenticated agency) Yes/No (Attach I.T. clearance):

10. Since when performing the related jobs :-.....



11. Past experience of Supply and Installation of Physics Laboratory Equipments”

Year of Supply and Installation of Physics Laboratory Equipments	Name of University/ Institute
2017-18	1. 2. 3. 4.
2018-19	1. 2. 3. 4.
2019-20	1. 2. 3. 4.

12. Tender form cost amounting to ₹500/- having DD No. .... dated .....
13. Net worth of the company/ firm (in crore:
14. Earnest money deposited (EMD) amounting to ₹50,000/- having DD No..... date .....

Certified that the aforesaid information is true to the best of my knowledge and belief. In case of any false statement observed later on, I/ We shall be liable for the consequences.

Dated:

Signature  
(with office seal)



**Financial Bid (Cover B)**  
(To be submitted separately in sealed envelope)

**Financial bid for providing and installation of Physics Laboratory Equipments**

1. Name of Firm: .....
2. Address of firm: .....
3. Contact No.: .....

Please read general terms & conditions. Quoted rates must be inclusive of all charges by way of packing, forwarding incidental of transit charge including transit insurance, octroi and any other levies or duties etc. and transportation of material up to University office/store except GST.

Sr. No.	Particulars of works	Rate per unit
1.	providing and installation of Physics Laboratory Equipments as per Annexure -C and Annexure-D	
2.	GST/Tax, if any (Not mentioning of any taxes will automatically be considered as inclusive).	
3.	Total (1+2) ₹	

Dated: \_\_\_\_\_

Signature  
(With Official seal)



# Physics Laboratory Equipments

Annexure-I

Sr. No.	Item	Specifications	Quantity
1	Millikan's oil drop experiment. with USB Camera & Software	Input voltage : AC 220V, 50Hz, Output power : 5W., proper Plate voltage. DIGITAL STOP WATCH Display, USB CAMERA, Sensor, Eyepiece with adaptor ring, Connectivity : USB ,System Requirement, CPU, proper RAM, OS, XP/Vista/Win7,/Win10, Display : 32Bit, 1024x768 (or standard), Objective lens: 100 lines/mm	01
2	Michelson Interferometer with all accessories	Michelson Interferometer, proper Base dimension, Distance of mirror M2 from Beam Splitter abt 100mm, adjustable Dimensions of beam splitter, proper Dimensions of mirrors M1 and M2, Flatness of beam splitter : $\lambda/8$ , fine Least count (0.01 mm) (coarse adjustment knob) Least count : 0.0001 mm (coarse adjustment knob) Sodium Light Source, Operating Voltage : 220 Volts, 50 Hz., Lamp House, USB camera and software, He-Ne Laser, Beam Expender, Dimensions of mirrors M1 and M2 :30 mm dia, Sodium Light SourceStarting Voltage : 470 Volts Operating Voltage : 220 Volts, 50 Hz, Lamp House : Excluding Rod (300 x 85 mm dia.)AperatureDia : 25mm	01
3	Apparatus for the Measurement of Susceptibility of Paramagnetic Solution by Quinck's tube Method	Voltage : 0-16V DC continuously variable & stabilized, Voltage display : $3\frac{1}{2}$ digit LED, Electromagnet, Power supply for electromagnet, U tube with stand, Travelling microscope: Horizontal travel 170mm, vertical travel 110mm, Least Count : 0.01mm, Working distance : 50mm, Eyepiece Ramsden: 8x, Reticle Plastic, electromagnet Coils : 500 turns	01
4	Ultrasonic Interferometer	Ultrasonic interferometer, sample liquids, Measuring cell: Max. displacement of the reflector : 20 mm Required Quantity of liquid: 10 c.c. Least Count of micrometer: 0.01mm/0.001 mm, shielded cable, voltmeter	01
5	Kit for Zeeman effect using Na lamp.	ELECTROMAGNET: Coils : 500 turns., Coil Current : 8.5Amp (Max.), Connection : 4mm safety socket., U Core : 150x130mm(LxH), 40x40mm cross section., I Core : Length=150mm, 40x40mm cross section, POWER SUPPLY 0-30V DC, 5A, Input Voltage : AC 220V $\pm$ 5%, Output Voltage : 0-30V, Output Current : 0-5Amp, Voltage Display : $3\frac{1}{2}$ Digit LED, Current Display : $3\frac{1}{2}$ Digit LEDFABRY PEROT ETALONMirror optics : $\lambda/20$ Mirror gap : 3 mm, adjustableFilter : 532nm, Green, Interference Filter, Clear view : 40mm dia, Rod : 10 mm dia, Compact electromagnet, High resuolution FP etalon to detect wavelength, Central wavelength of filter 546.1 nm, multipurpose power supply, Optical bench triangular, Transverse slider, Convex lens, polarizer filter, Quarter wave filter, Electromagnet, Microscopic camera, Digital gauss meter, Color filter with holder, Micrometer eyepiece, Fixed slider polarizer filter, Angle : Adjustable (0°-90°), Aperture : 21mm dia, Mercury tube with holder; Tube : High pressure mercury tubeInput : 230V ACOutput : 12VConnection : Tag with tightening screw, convex lens in holder, Focal Length : 50mm, Diameter of Lens : 50 mmFrame Diameter : 130 mm to avoids, scattering of lights, Rod Diameter : 10 mm, digital gauss meter, Range : 200 G & 2 kGResolution : 1G at 0 - 200GPower : 220 V, 50 Hz AC.	01

*Handwritten signature*

6 B-H curve apparatus for magnetic material (advance) Constant current source, 4-1/2 digit, range: 0 ~ 600 mA, adjustable Magnetic material sample. 2 pcs (one die steel, one #45 steel), rectangular bar, section: length: 2.00 cm; width: 2.00 cm; gap: 2.00 mm. Digital Teslameter, 4-1/2 digit, range: 0 ~ 2 T, resolution: 0.1 mT, with Hall probe, electromagnet, flexible leads.

7	GM Counter For (a) characteristics, (b) dead time (c) absorption coefficient of given material.	Standard Geiger tubes, Preset Time, Digital Rate meter Preset Audio Alarm, Adjustable High Voltage, Volume Control, Operate both manual and software mode. High voltage : 0 to +1200 volts @ 0.5mA. Display : 6-decade LED, Preset Time; Count Rate (counts per second); High Voltage Level; Alarm Level; Speaker Volume. Audio, USB and RS-232 serial ports for both PC and 9 volt DC, at 500mA Dimensions : 10 inches W, x 7 inches D, x 4.5 inches H Software : GM-35 Tube with Stand: GM35 GM Probe : 35mm end window with BNC connector. Plateau : 2 mg/cm <sup>2</sup> , 150V, Deadtime : 200 microsecond Dimension : 35 mm OD, x 223 mm L Stand. Absorbers: radiation absorbers covers the range from 4.5 to 7400 mg/cm <sup>2</sup> and consists of aluminum, plastic and lead plates, Five Radioactive Source: Isotope; Activity; Half-life; Emissions; Energies (keV) Cs137; 5uCi 30.; 1yrs; Gamma, Beta ; $\gamma$ 32, $\gamma$ 661.6, $\beta$ 511.6, $\beta$ 1173.2 Po210; 0.1uCi. ; 138days; Alpha: $\gamma$ 5407.5 Sr90S; 0.1uCi.; 28.8yrs; Beta; $\beta$ 546, Co60; 1uCi.; 5.27yrs; Gamma, Beta; $\gamma$ 1173.2, $\gamma$ 1332.5, $\beta$ 317.9. Tl204S1; 1uCi.; 3.78yrs; Beta; $\beta$ 763.7. Lead Shield: Wall thickness : 0.5" Capacity : Holds up to 20 1" discs. Outside Dimensions : 3.6" x 2.25" (L x $\phi$ ), lead shield container is suitable for higher activity gamma sources along with AERB certification/approval.	01
8	Laser Experimental Setup with He-Ne Laser	(optical bench, slits, lens, optical bench, screen, source, diffraction grating 500 LPI, 15000 LPI)	01
9	Determining thickness of a thin wire by diffraction using laser beam (Diode Laser Diffraction)	Material: Aluminum extrusion, Single slit, double slit, multiple slit 3, multiple slit 4, multiple slit 5, single tapered slit, fine grating, 4 holes, circular opaque spots. gray filter, mesh, coarse grating & grid pattern. Photo detector, digital multimeter, Resistance : 200W, 2000W, 20k, 200k & 2000k W.D.C. Voltage : 200 & 2000 mV: 20, 200 & 600V A.C. Voltage : 200 & 600V, D.C. Current : 200 & 2000mA: 20 & 200mA: 10 A Testing : Diode & transistor Battery : 9V.	01
10	Planck's Constant (with five filters, stopping potential) (Advanced)	photo cell, power supply, monochromatic light source, optical bench, least count : 1mm. This optical bench is rigid, heavy, stable and long lasting. POWER SUPPLY 12V AC/DC, Output, Input : 230 V AC, 50 Hz, dia. : 10mm Slit opening : upto 20mm, digital multimeter, Resistance : 200W, 2000W, 20k, 200k & 2000k, Battery : 9V, Photocell : mercury light source Starting Voltage : 470 Volts Input Voltage : 220 Volts, 50 Hz. Lamp color filter: Red : 635nm Orange : 570nm Yellow : 540nm Green : 500nm Blue : 460nm	01
11	Electronic Plug-in Kit	Circuit board consisting of Capacitor modules, Flip-flips, Resistor modules, Gates OR, AND, XOR, X-NOR, Half adder, Half subtractor module, JFET Module, ADC module, digital multimeter, Lamp source, Light sensor, MOSFET module, seven segment decoder, coder, Shift register module, Signal generator, Transformer module, Transistor module, Triac, UJT module, Variable power supply, Variable resistor, Zener diode module and other accessories. All the modules should be in different compatible ranges.	01

*Handwritten signature*

12	To calibrate a gamma ray spectrometer and to determine the energy of given gamma ray source.	Gamma ray spectrometer, scintillation probe, gamma source, absorbers, lead shield for radioactive sources, USB cable and other accessories alongwith AERB certification/approval	01
13	To find the wavelength of monochromatic light using Feby Perot interferometer	Interferometer frame, He-Ne laser, Laser holder, glass screen, beam expander, lamp, air chamber and pump with gauge, Includes He-Ne laser and sodium tungsten lamp.	01
14	Study of variation of modulus of rigidity and internal friction of a specimen rod with temperature.	Specimen rod, heater coil, auxiliary body, mirror, coil, lamp, scale (optional: function generator), Circular or rectangular discs, weights, a stop watch and meterscale.	01
15	Dielectric constant of a liquid by dipole meter.	Probes Arrangement, Samples, Digital Capacitance Meter, Range in mf, Resolution : in pf, Display : LCD display.	01
16	Wolfram Mathematica Software (latest version)	Latest version for Academic purposes	01
17	Complete set for recording, simulating and analyzing the experimental data consisting of Desktop/PC/laptop along with CPU, UPS, scanner & printer etc.	Latest version with complete specifications	02
18	Electrochemical Analyzer/Workstation/ CH Instruments	Designed by electrochemists, for electrochemists, Macro commands for batch experiments, CV simulation and fitting program, AC impedance simulation and fitting program, Interactive 3D graphic, frequency upto MHz/GHz with other features	01

*Lead*