Supply, Installation & Commissioning of Physics And Chemistry Laboratory Equipment and Supply Of Consumables

Tender No: IMUV/2024/2020-2021/Laboratories/001
Dated 30-06-2020

INDIAN MARITIME UNIVERSITY
(A Central University, Govt. of India)
VISAKHAPATNAM CAMPUS
VANGALI, TEKKALIPALEM (PO)
NEAR RAYAVARAPU AGRAHARAM
SABBAVARAM MANDAL
VISAKHAPATNAM-531035

Website:
www.imu.edu.in
www.imuv.edu.in

SECTION 1
NOTICE INVITING TENDER

1.1 Indian Maritime University, Visakhapatnam Campus invites sealed Tenders under Two bid system for "Supply, Installation & Commissioning of Physics and Chemistry Laboratory Equipment and Supply of Consumables".

1.2 Tenderers are advised to study the Tender Document (including all Sections, Schedules and Annexures etc.,) carefully. Submission of Tender shall deem to have been done after careful study and examination of the Tender Document with full understanding of its implications.

1.3 Sealed tender prepared in accordance with the conditions enumerated in Section-3 should be submitted to the Campus Director, Indian Maritime University, Visakhapatnam Campus, Vangali Village, Tekkalipalem (PO), Near Rayavarapu Agraharam, Sabbavaram (MD), Visakhapatnam-531035, Andhra Pradesh, not later than the date and time mentioned, at the address given in this section.

1.4 The detailed Tender Document can be downloaded from IMU website www.imu.edu.in / www.imuv.edu.in.

1.5 All Tender must be accompanied by Earnest Money Deposit (EMD) of Rs.1,45,000-00 (Rupees One Lakh Forty Five Thousand only) through Demand Draft drawn on any Nationalized / Scheduled Bank favoring Indian Maritime University, Visakhapatnam Campus payable at Visakhapatnam.

1.6 This Tender Document is not transferable.

1.7 Schedule for Invitation to Tender

a) Name of the Purchaser

Campus Director
Indian Maritime University
Visakhapatnam Campus
Vangali (V), Tekkalipalem (P)
Near Rayavarapu Agraharam, Sabbavaram (M)
Visakhapatnam-531035
Andhra Pradesh

b) Location where the Laboratory Equipment to be supplied, Installed and Commissioned and Supply of Consumables

Indian Maritime University
Visakhapatnam Campus
Vangali (V), Tekkalipalem (P)
Near Rayavarapu Agraharam
Sabbavaram (M)
Visakhapatnam-531035
Andhra Pradesh

c) Place of issue of Tender Enquiry Document and address at which the Tender Documents are to be submitted

Indian Maritime University
Visakhapatnam Campus
Vangali (V), Tekkalipalem (P)
Near Rayavarapu Agraharam
Sabbavaram (M)
Visakhapatnam-531035
Andhra Pradesh

d) Date from which the Tender Document issued

From 30-06-2020 onwards (only on working days)

e) Last Date for submission of the Tender Document both Technical and Financial –

On or before 11:00 Hrs. on 15-07-2020

f) Date of opening of Tender Document (Technical) –

At 11:30 Hrs. on 15-07-2020

1.8 Date of opening of Tender Document (Financial) shall be intimated to the technically qualified tenderers by email.

1.9 The Tender Enquiry shall be valid for 90 days from the date of opening of the Technical bid.

1.10 The successful Tenderer shall complete the Supply, Installation and Commissioning of Physics and Chemistry Laboratory Equipment and supply of consumables within three (3) Weeks from the date of placement of Firm Order.

1.11 Clarifications on the specifications, tender conditions etc., if any, may be sent to kvkramakrishnapatnaik@imu.ac.in and will be clarified till 3:00 PM of 07-07-2020. Any queries thereafter will not be entertained.

SECTION 2
DEFINITIONS

2.1 Tenderer: Refers to the Person or the Firm or the Company submitting the tender.

2.2 Vendor: Refers to the person or the firm or the Company with whom the order for the Supply, Installation and Commissioning of the Equipment is placed and shall be deemed to include the Vendor's successors, their representatives (approved by the Purchaser), heirs, executors, administrators and permitted assigns, as the case may be, unless excluded by the terms of the Contract. Also referred to as the successful Tenderer.

2.3. Purchaser: Refers to IMU, Visakhapatnam Campus

2.4. The Consignee of all the items shall be IMU, Visakhapatnam Campus

2.5. IMUV: Refers to Indian Maritime University, Visakhapatnam Campus.

2.6. Goods: Refers to all equipment, other accessories, which the successful Tenderer is required to supply to IMU, Visakhapatnam Campus under the Contract as indicated in this Tender. The delivery location shall be IMUV unless otherwise specified.

2.7 Services: Refers to various Services indicated in this Tender and shall include services ancillary to the supply of the Goods, transportation, insurance and any other incidental services, such as installation, warranty, maintenance for Three years. Service as specified in this tender including the provision of technical assistance for integration of the supplied items and training and any other such obligations of the Tenderer as covered under the tender.

2.8 Items: Refers to all Goods and Services indicated in this Tender and shall include all accessories which are essential to meet the requirements specified.

2.9 Start Date: Refers the date on which the order is placed on the successful tenderer.

2.10 Acceptance/Completion Date: Refers to the date on which all the items as specified in the tender are Supplied, Installed & Commissioned and acceptance of the Equipment by IMUV and supply of Consumables.

SECTION - 3

GENERAL CONDITIONS AND DIRECTIONS FOR THE GUIDANCE OF TENDERER

3.1 Tenders in sealed cover should be submitted as per the 'Schedule of Requirements' as indicated in Section-6 in this tender and in accordance with instructions to Tenderers i.e. as per general conditions and directions for the guidance of Tenderer. The bid have to be given page numbers (both sides, wherever applicable) and submitted in thick bound file to Campus Director, Indian Maritime University, Visakhapatnam Campus, Visakhapatnam Vangali Village, Tekkalipalem (PO), Near Rayavarapu Agraharam, Sabbavaram (MD), Visakhapatnam-531035, Andhra Pradesh.

3.2 Tender must be submitted in one sealed main cover containing Cover-1 and Cover-2 separately and the main cover shall be super scribed as for "Supply, Installation & Commissioning Physics and Chemistry Laboratory Equipment and supply of consumables". All the covers shall be addressed to the Campus Director, Indian Maritime University, Visakhapatnam Campus, Visakhapatnam Vangali Village, Tekkalipalem (PO), Near Rayavarapu Agraharam, Sabbavaram (MD), Visakhapatnam-531035, Andhra Pradesh. Name and address of the Tenderer shall also be written on all covers.

3.3 The Tenderer shall clearly write on Cover-1 as Technical Bid & Cover-2 as Price Bid and shall super scribe "Supply, Installation & Commissioning Physics and Chemistry Laboratory Equipment and supply of consumables" on the two covers.

3.4 The tender shall be submitted in bound form and not in loose sheets.

3.5 On the date of opening of technical bid, only the Main Cover and Cover-1 (Technical Bid) alone will be opened. Cover-2 (Price Bid) of various Tenderers will be put in a sealed cover in the presence of the Tenderers or their authorized representatives, who are present on the date of opening of Technical bid. Eligible tenderers should send letter of authorization with attested specimen signatures of their representatives deputed to attend at the time of opening of Tender. Representatives without such authorization not permitted to be present to witness the opening of either technical or financial bid as the case may be the bid.

3.6 The Tenderer shall offer and quote for all items indicated in the Tender. Tender responses that do not cover all items shall be summarily rejected.

3.7 The Tenderer should enclose in the technical bid, full details of the items offered with full documentation, descriptive literature/leaflets supplementing the description to meet the specification as indicated in the tender. Models and Brands offered shall be clearly indicated including all accessories. All documentation required is to be in English Language. The Tenderer shall clearly indicate OEM part/identification numbers for all the equipment and services supplied inclusive of warranty in technical bid.

3.8 The Tender should be complete in all respects and if the Tender is incomplete the same may be rejected.

3.9 The Tenderer shall sign and affix stamp on all pages of the tender documents and a person, holding a power of attorney authorizing him to do so, shall make such signature. The letter of authorization is to be enclosed along with the covering letter of the technical and price bids.

3.10 The Tenderer shall offer the items specified in the Tender document, as the sole agency.

3.11 Amendment to Tender Document

3.11.1 At any time prior to the last date for receipt of the bids, IMUV, may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Tenderer, modify the Tender Document by an amendment.

3.11.2 The amendment will be notified in the website of IMUV instead of sending the same by post or other modes of dispatch.

3.11.3 In order to afford prospective Tenderers, reasonable time in which to take the amendment into account in preparing their bids, IMU may or at its own discretion, extend the last date for receipt of bids.

3.12 The amount of Earnest Money Deposit is Rs.1,45,000-00 (Rupees One Lakh Forty Five Thousand only) and shall deposit in the form of Demand Draft drawn on any Nationalized / Scheduled Bank in favour of Indian Maritime University, Visakhapatnam Campus payable at Visakhapatnam. The Demand Draft should be enclosed to the Technical Bid and should not be sent separately.

3.13 The Earnest Money deposited by the unsuccessful Tenderer will be refunded without any interest on placement of Order on the successful Tenderer. The EMD of the successful Tenderer will be converted as Security Deposit and the balance amount of Security Deposit shall be recovered from the final amounts released to successful bidders.

3.14 The prices quoted should be on Indian Rupee basis and should include the base price (inclusive of freight, forwarding, Insurance coverage till acceptance and delivery at IMUV), installation, commissioning along with applicable taxes and duties. The taxes and duties, if any, shall be indicated clearly in the Tender and the same shall be taken into account to arrive at the total price for delivery at IMUV. IMUV does not bind itself to accept claims for extra payment for items not included in the Tender. Any revision in Statutory levies during the period between placement of Order and successful testing of the equipment would be paid by IMUV on receiving documentary evidence for such revisions against the information furnished in the Tender.

3.15 The Tenderer shall abide by the specifications and terms and conditions as mentioned in this tender.

3.16 EMD of the Tenderer would be forfeited if -

a) The tenderer is not willing to abide by the terms of conditions after submission of tender.
b) The tenderer does not honour the clarifications provided to IMUV.
c) Withdraws or amends or impairs or derogates from the tender in any respect within the period of validity of its tender before receipt of final acceptance.
d) Fails to submit Bank Guarantee as indicated in this tender within the stipulated time. (This is applicable to tenderer whose tender has been accepted)

3.17 Eligibility Criteria for Tenderers

(a) The tenderer should have supplied at least one set of Physics and Chemistry Laboratory Equipment to any Engineering Educational Institutes in India (Colleges / Universities) in the last three years (2016-2017, 2017-2018 and 2018-2019) valuing Rs.10.00 Lakhs.

(b) The agency should have minimum Annual Turnover of Rs.15.00 lakhs during the last Financial Years i.e. 2016-17, 2017-18, and 2018-19.

(c) The Tender should have Work orders worth Rs.30.00 Lakhs (Rupees Fifty lakhs) together during the last three Financial Years i.e. 2016-17, 2017-18, and 2018-19

3.18 The tenderers should enclose copies of the following documents or otherwise the tender will be summarily rejected.

a) Certificate of Registration / Incorporation
b) Permanent Account Number issued by the Income Tax Authorities
c) Registration Certificate under GST Law
d) Agreements / Work orders in respect of supply of Physics and Chemistry Laboratory Equipment in Engineering Educational Institutes (Colleges / Universities) in India during the Financial years 2016-2017, 2017-2018 and 2018-2019
e) Satisfactory Performance Certificates from the Engineering Educational Institutes (Colleges / Universities) in India where Physics and Chemistry Laboratory Equipment has been supplied during the Financial Years 2016-2017, 2018-2018 and 2018-2019
f) Audited Balance Sheet and Profit and Loss Account for the years 2016-2017, 2017-2018 and 2018-2019
g) Income Tax Returns for the Financial Years 2016-2017 (AY 2017-2018), 2017-2018 (AY 2018-2019) and 2018-2019 (AY 2019-2020)
h) Undertaking on letter head of the tenderer stating that it has not been blacklisted by any Central Government Department/ Ministry/PSU/ Statement Government etc.

3.19 The Specifications of equipment to be supplied refer to the minimum requirements that the Tenderer is required to meet. Tenders in non-compliance of the minimum specifications would be summarily rejected. The tenderer is required to quote for any accessories etc., which are required to make the Equipment fully operational and functional.

3.20 Only detailed complete offers received prior to closing time and date of the Tenders will be taken as valid.

3.21 Offers received through Telegraphic/Fax/E-Mail will be treated as defective, invalid and rejected.

3.22 Tenders will be opened on the day and time as indicated in this document. Eligible Tenderers as above should send letter of authorization with attested specimen signatures of their representatives who are deputed to attend at the time of opening of Tenders. Representative without such authorization letters may not be permitted to be present to witness the opening. (Only one person is authorized to attend on behalf of each Tenderer for Bid Opening).

3.23 The financial bids will be evaluated and successful bidder will be notified based on the lowest quoted tender among the bidders whose bids are technically qualified and opened. The L-1 will be decided based on the lowest quoted rate considering the equipment and consumables.

3.24 Placement of Order

3.24.1 After evaluation and finalization of bids received, IMUV would place the Order on the successful Tenderer. The tender will be awarded to the tenderer who is technically qualified and whose quoted value is lesser than other tenderers.

3.24.2 The date on which firm order is placed on the successful tenderer would be treated as the start date.

3.24.3 IMU reserves right to modify the terms and conditions to the Order, so as to meet contingency situations, which can arise from time to time. Such modifications would be discussed and agreed upon by the successful Tenderer taking into consideration the cost, time and other implications. After finalization of modification, the Order may be suitably amended, if required.

3.24.4 IMU reserves right to change quantities or withdraw some of the items from bill of materials before issuing the order.

3.25 Terms of Payment

(a) 90% of the Order Value shall be released against Receipt, Installation & Commissioning of the Laboratory Equipment and supply of Consumables.

(b) Balance 10% of the Order will be retained towards Security Deposit (after the adjustment of EMD converted as Security Deposit) which shall be release 60 days beyond the date of completion of all the obligations of the supplier, including warranty obligations.

SECTION - 4

SPECIAL CONDITIONS OF TENDER

4.1 Successful Tenderer shall be responsible for the insurance, safe delivery and installation of the goods at IMUV. The successful Tenderer is responsible for all the supplies of goods and services till the acceptance date after which the ownership is transferred to IMUV.

4.2 In the event of the placement of the Order, the consignment shall be booked in the name of Indian Maritime University, Visakhapatnam Campus, Visakhapatnam Vangali Village, Tekkalipalem (PO), Near Rayavarapu Agraharam, Sabbavaram (MD), Visakhapatnam-531035, Andhra Pradesh. Any demurrage charges that may become payable on account of the successful Tenderers failure to consign the materials duly, shall be to the successful Tenderer Account. The transportation charges of the item i.e., up to the delivery venue shall be borne by the successful tenderer.

4.3 The time of delivery is important and must be clearly stated in the Tender and strictly adhered to in the event of a tender being awarded. The delivery time would commence from the start date.

4.4 In case of delay in the supply, IMUV shall issue to the successful Tenderer; a memo in writing, pointing out the delay in the supply and calling upon the successful Tenderer to explain the cause for the delay within 3 days of the receipt of the memo.

4.5 If IMU is not satisfied with the explanation offered, the successful Tenderers security deposit may be forfeited and or IMU may withhold payment of pending bills in whole or in part. If the security deposit or any part thereof is forfeited by an order of IMU and such order becomes final, the successful Tenderer shall make good the security deposit or part of such deposit so forfeited within a fortnight thereafter.

4.6 If the successful tenderer fails to execute the Supply, Installation and Commissioning in all respects within the period specified or within such extended period as may be allowed, an amount equivalent to 0.5% of the value of the total tender price per week (Seven days) or part thereof subject to a maximum

limit of 10% of the value, as liquidated and ascertained damages shall be recovered from the payments due.

4.7 The supply shall be subject to inspection by IMU and IMU's decision as to the acceptance or rejection of any goods as not conforming to specification, shall be final and binding on the successful tenderer. Such of the goods which are rejected shall be removed by the successful tenderer their own expense and replaced by fresh ones within the time frame decided by IMU.

4.8 It must be clearly understood that the prices quoted in the tender are to include everything required to be done as per the specification and the conditions of tender and supply for the proper execution of supply although special mention thereof may have been omitted in the specification. The specifications indicated are for minimum and shall include accessories etc., required to make the system fully operational.

4.9 The successful tenderer shall agree to supply the additional quantities for the same price and comprehensive warranty in the event the purchaser places a repeat order for some of the items within next Six months.

SECTION - 5

OTHER GENERAL CONDITIONS

5.1 The Laboratory Equipment and Consumables to be supplied by the tenderer shall be of the quality or sort specified and in every respect equal and answerable to the specifications sent with the tender and shall be subject to the approval of the IMUV.

5.2 The Laboratory Equipment and Consumables is to be delivered at specified place in IMU premises in Visakhapatnam, free of delivery charges as per specified time.

5.3 Delivery of Laboratory Equipment and Consumables will not be considered complete until such Equipment has been inspected and passed at the place specified for delivery by IMUV. The detailed list of components supplied by the tenderer and Bill of Materials shall be provided well in advance for facilitating inspection by IMUV.

5.4 Rejected Laboratory Equipment and Consumables shall be removed by and at the expenses of the tenderer within seven days after notice. If not so taken away, the IMUV may seize the goods or materials to be removed and charge the tenderer with all expenses incurred in such removal.

5.5 The tender or any part share or interest in it shall not be transferred directly or indirectly to any person whomsoever without the written consent of IMU.

5.6 It shall be lawful for IMUV, without giving any notice to the successful tenderer, to purchase in the open market any Equipment and consumables covered by the tender and if such Equipment and Consumables are not available to purchase suitable substitute, as to which, the decision of the IMUV shall be final and binding on the bidder, in the event of the bidder;

(a) Having delivered Laboratory Equipment and consumables not of the contracted quality.

(b) Having failed to supply the Laboratory Equipment and consumables within the time specified.

(c) Having refused or being unable to supply the Laboratory Equipment and Consumables covered by tender either in whole or in part.

The charges incurred in this regard shall be borne by the successful tenderer.

The expenses incurred by IMUV in this regard shall be borne by the successful tenderer.

5.7 Any notice to the successful tenderer shall deemed to be sufficiently served, if given or left in writing at his usual or latest known place of abode or business or even by mail or any such authorized mode of communication as deemed fit by IMUV.

5.8 In these conditions unless there is something in the subject or context inconsistent there with words importing the singular shall include the plural and vice-versa words importing the masculine gender shall include the feminine and the words importing persons shall include bodies corporate.

SECTION - 6

SCHEDULE OF REQUIREMENTS

6.1 Scope

6.1.1 This specification covers the requirements regarding Supply, Installation and Commissioning of the Laboratory Equipment and supply of Consumables.

6.1.2 The Tenderer shall be responsible for supplying all equipment and properly installing them as described in this specification. Other details and requirements which are not covered under this specification, but may be necessary to complete the work and/or to fulfill the operation/performance requirement shall be provided by the vendor, who will be responsible for the construction of the complete appliance to the full satisfaction of the owner

6.2 Technical Specifications of Equipment and Bill of Materials

6.2.1 Physics Laboratory Equipment

Sl. No	Name of the Equipment and Technical Specifications	Quantity Nos.
1	Torsional Pendulum Rigidity Modulus Torsional pendulum with Stand, wire and Accessories Stop Watch: Standard Analog Screw Gauge: 50 – 75 mm Vernier Caliper: 12 Inches Metric Ruler SS scale: 1 meter	4
2	Normal mode of Coupled Oscillators Coupling springs, Screen on stand etc.: Pendulum length: 1 m Spring length: 21 cm Dia: 30mm Constant: 2.5N/m Weights (4): 500g Power supply: o/p: 12v,5v/500mA Detector: Magnetic field sensor PC interface: RS232 Data acquisition unit: LCD display least count: 1 sec Stop Watch - Standard Analog	4

3	Measurement of Velocity of acoustic waves Resonance tube - Standard size, Tuning fork : ≥ 450Hz, Rubber Mallets, Thermometer : Mercury 110°c, Beaker: 500ml; Metric Ruler SS scale: 1 meter	4
4	Newton's Rings Newton's Ring Assembly: Minimum Division of reading drum - 0.01mm, Sodium Lamp : Working distance-76mm Beam Splitter: View field -10mm Focusing Knob: Measurement of accuracy 0.01mm, Retard stand: Radius of curvature R=100cm, Beam Splitter	4
5	Rotation of an optically active source Polari meter : Measuring range of optical rotation : +/- 180 Division Value: 1° Least count: 0.05° Magnifying factor of the magnifying glass : 4 times Monochromatic light source : 5893A° Power line voltage: 220V, 50 Hz Working current: 1.3A Discharging power: 20W Stabilization time: 5 minutes (approx.) A balance: Weighing Balance Measuring Cylinder: 50 ML Beaker : 100 ML Source of Light and Polari meter tube Sodium Vapor lamp : 30W	4
6	Diffraction with laser Gratings : 100 mm, 200 mm, 300 mm, screen, Laser sources Semi-conductor laser , Optical Bench , screen: Semi - conductor laser (diode laser)	4
7	Dispersive Power of a Prism Gratings : 15, 000 lines Per inch Prism : 32 x32 Equilateral size Mercury Vapor lamp Reading lens, Spectrometer Spirit level	4

8	Fresnel Bi-Prism Optical Bench : Source, slit, Bi prism , Stand Sodium lamp Fresnel's Bi prism Convex lens and Micrometer Eye piece	4
9	Franck -Hertz experiment A mercury filled frank : Saw tooth waveform for CRO display, A neon filled frank hertz tube - Scanning Voltage : 0-80 Scanning A small Heater : Filament Power Supply : 2.6-3.4V continuously frequency : 115±20Hz A control unit for power supply DC Current amplifier	4
10	Photo Electric Effect Optical filters , Apertures , Caps, Screws, Mercury light source enclosure : Photo Sensitive Device: 1) Vacuum photo tube. 2) Light source: Halogen tungsten lamp 12V/35W. 3) Color Filters : 635nm, 570nm, 540nm, 500nm & 460nm Photo diode enclosure Photo electric effect apparatus , Cables & Cords:, Power cord for power supply Power cable for photo electric apparatus BNC connector cable for photo diode enclosure Banana plug patch cords , red and blue Optical Filters Box : Filters: 365 nm , 405 nm , 436nm, 546 nm, 577 nm Optical Filters Box : Aperture -2mm, 4mm & 8mm diameter Caps : photo diode mercury lamp	4
11	Measurement of Band gap in semi-conductors Semiconductor diode kit : Resistivity of Semiconductors , Four probe method digital display Thermistor : with Meters, Power supply,	4
	CRO (Cathode ray oscilloscope) : WITH ALT TRIG	4
12	Measurement of Hall effect Power supply for electromagnets : Gauss meter with hall probes, P type and Ge semi-conductors on PCB (Printed circuit Board), Multi meter and electromagnets,	4
	CRO (Cathode ray oscilloscope) : WITH ALT TRIG	4

6.2.2 Chemistry Laboratory Equipment

Sl. No	Name of the Experiment	Equipment	Quantity Nos.
1	Conductivity meter with glass electrode	Range : 0uS- 200 mS, Resolution : 0.1uS, Temperature : 0 C - 100 c (Manual) , Readout : 3 digits LED	8
2	Stop watch		8
3	Determination of viscosity of a lubricating oil using Red wood viscometer	Red wood Viscometer	2

6.2.3 Chemistry Laboratory (Glassware)

Sl. No	Item Description	Volume / Capacity	Quantity Nos.
1	Burette	50ml (Borosilicate)	35
2	Pipette	20 ml (Borosilicate)	35
		10 ml	35
		5 ml	35
3	Burette stand	Standard size	35
4	Conical Flask	250 ml	35
5	Funnel	75mm Dia	35
6	White tiles	100 x 100 mm	35
7	Watch glass	Dia 75mm (2.8inch)	35
8	China dish	Dia 75 mm	35
9	Water Bath	500ml	35
10	Tripod stand	Standard size	35
11	Micro burette	10ml	35
12	Beaker	100ml (Borosilicate)	20
		250ml	20
		500ml	20
		1000ml	20
13	Measuring Jar	5 ml (Borosilicate)	10
		10ml	10
		50ml	10
		100 ml	10
		500ml (Plastic)	10
		1000ml (Plastic)	10
14	Nickel spatula	Standard size	40
15	Mortar and pestle set	500ml	2

16	Test tube	20 ml	100
17	Test tube stand	Plastic	40
18	Iodine Flask with lid	500 ml	35
19	Buchner funnel	Porcelain	40
20	Wire gauze	Standard size	40
21	Glass rod	10 cm	40
22	Filler	Standard size	20
23	Rubber cork	Standard size	40
24	Thermometer (Mercury)	360º C	15
25	Brown Bottles	2 Liter capacity	10
26	Plastic can	3 Liter	10
		5 Liter	10
		10 Liter	10
27	Plastic Bucket with lid	5 liter	10
28	Brush	Reagent Bottle cleaning brush	20
29	Test tube holder	Standard size	40
30	Tongs	Standard size	40
31	Boiling tube with cork	20 ml	40
32	Reagent Bottles	100 ml	25
		250 ml	25
		500 ml	25
		1000 ml	25
33	Safety gloves	Standard size	100

6.2.4 Chemistry Laboratory (Chemicals)

Sl. No.	Name of the Experiment	Name of the Chemical	Units	Quantity
1	Estimation of Chloride Ion	Silver Nitrate	grams	100
		Sodium Chloride	grams	500
		Potassium Chromate Indicator	grams	500
2	EDTA Titration	EDTA	grams	500
		Zinc Sulphate hexahydrate	grams	500
		Ammonia	litre	5
		Ammonium chloride	kg	1
		Eriochrome Black -T Indicator	grams	100
3	Akalinity	Conc.Hydrochloric acid	litre	5
		Sodium Bicarbonate	grams	500
		Sodium Carbonate	grams	500

		Sodium Hydroxide	grams	500
		Methyl orange Indicator	ml	100
		Phenolphthalein Indicator	ml	100
4	Estimation of D.O.	Sodium Thiosulphate	grams	500
		Potassium Dichromate	grams	500
		Potassium Iodide	kg	1
		Conc . Sulphuric acid	litre	3
		Manganese Sulphate	grams	500
		Sodium Hydroxide	grams	500
		Starch Indicator	grams	500
5	Estimation of Phosphate	Ortho Phosphoric acid	litre	1
		Sodium Hydroxide	grams	500
		Methyl orange indicator	ml	100
6	Conductometric Titrations	Hydrochloric acid	litre	1
		Sodium hydroxide	grams	500
7	Estimation of Ferrous Sulphate	Ferrous Sulphate	grams	500
		Potassium Permanganate	grams	500
8	Determination of viscosity of a lubricating oil using Red wood viscometer	Coconut oil, Castor oil ,	ml	250
9	Estimation of Hydrazine	Hydrazine Sulphate	grams	500
		Potassium Iodate	grams	500
		Starch	grams	500
		Conc. Hcl	litre	3
10	Estimation of Sulphate	Barium chloride	grams	500
		Sodium Sulphate	grams	500

6.3 Inspection, Installation & Commissioning and Acceptance of the Laboratory Equipment

6.3.1 The Inspection, Installation and Commissioning and acceptance of the equipment shall be carried out at Indian Maritime University up on receipt in presence of the IMUV staff.

6.3.2 The supplier has to demonstrate the functioning of the each experiment/equipment at Indian Maritime University, Visakhapatnam Campus.

6.3.3 The Inspection, Installation and Commissioning and acceptance of the equipment and Consumables shall be as per the in-house format of IMUV.

TECHNICAL BID

Sl. No	Particulars		Documentary Proof
1	Name of the Tenderer		
2	Status (Proprietary/Partnership/ Society/Company)		Indicate whether documentary proof enclosed Yes / No
3	Address of the Registered Office		
4	Telephone		
	Mobile		
	Email Address		
5	Address of the Local Office		
6	Telephone		
	Mobile		
	Email Address		
7	Permanent Account Number issued by the Income Tax Authorities		Indicate whether documentary proof enclosed Yes / No
8	GST Registration Number		Indicate whether documentary proof enclosed Yes / No

9	Turnover over – ➢ 2016-2017 ➢ 2017-2018 ➢ 2018-2019	 Rs._____ Lakhs Rs._____ Lakhs Rs._____ Lakhs	Indicate whether documentary proof enclosed Yes / No Yes / No Yes / No
10	Audited Balance Sheet and Profit and Loss Account for the Financial Years - ➢ 2016-2017 ➢ 2017-2018 ➢ 2018-2019	Indicate whether documentary proof enclosed Yes / No Yes / No Yes / No	
11	Income Tax Returns for the Financial Years (FY) ➢ FY 2016-2017 (AY 2017-2018) ➢ FY 2017-2018 (AY 2018-2019) ➢ FY 2018-2019 (AY 2019-2020)	Indicate whether documentary proof enclosed Yes / No Yes / No Yes / No	
12	Details of Agreements / Work orders in respect of supply of Physics and Chemistry Laboratory Equipment in Engineering Educational Institutes (Colleges / Universities) in India during the Financial Years 2016-17, 2017-18 and 2018-19 including value with a consolidated statement as per Annexure-1	Indicate whether documentary proof enclosed Yes / No	

13	Satisfactory Performance Certificates from the organizations where the Physics and Chemistry Laboratory Equipment in Engineering Educational Institutes (Colleges / Universities) in India has been supplied during the Financial Years 2016-2017, 2018-2018 and 2018-2019 as per Annexure-2	Indicate whether documentary proof enclosed Yes / No
14	Undertaking on letter head of the Tenderer stating that it has not been blacklisted by any Central Government Department/ Ministry / PSU / Statement Government etc. as Annexure-3	Indicate whether documentary proof enclosed Yes / No
15	Bank Details a) Account Number b) Type of Account c) Bank d) Branch e) Address d) IFSC Code	 _____ _____ _____ _____ _____ _____

Signature and Seal of the Bidder

Place : _____

Date : _____

Annexure-1

Annexure-1 (Sl.No.12 of the Technical Bid)

Details of Agreements / Work orders in respect of supply of Physics and Chemistry Laboratory Equipment in Engineering Educational Institutes (Colleges / Universities) in India during the Financial Years 2016-17, 2017-18 and 2018-19

Sl. No.	Educational Institutes (Colleges / Universities)	Period		Agreements / Work orders in respect of supply of Physics and Chemistry Laboratory Equipment in Engineering Educational Institutes (Colleges / Universities)	Value Rs.
		From	To		

Signature and Seal of the Bidder

Place : _____

Date : _____

Annexure-2 (Sl.No.13 of the Technical Bid)

Details of Satisfactory Performance Certificates from the Engineering Educational Institutes (Colleges / Universities) in India where Physics and Chemistry Laboratory Equipment has been supplied during the Financial Years 2016-2017, 2018-2018 and 2018-2019

Sl. No.	Educational Institutes (Colleges / Universities)	Details of Equipment	Reference of Performance Certificate and Date

Signature and Seal of the Bidder

Place : _____

Date : _____

Annexure-3 (Sl.No14 to Technical Bid)

Format of Undertaking, To Be Furnished On Company Letter Head With Regard To Black Listing /Non-Debarment, By Organisation

Undertaking Regarding Blacklisting / Non-Debarment

The Campus Director
Indian maritime University
Tekkalipalem (PO)
Near Rayavarapu Agraharam
Sabbavaram Mandal
Vangali
Visakhapatnam -531035

Sir,

We hereby confirm and declare that we, M/s._____ is not blacklisted /de-registered/debarred by any Government / Public Sector Undertaking /Private Sector/ or any other agency for which we have Executed / Undertaken the works/Services during the last 5 years.

Authorized Signatory

Date: _____

Tender for Supply, Installation & Commissioning of Physics and Chemistry Laboratory Equipment and Supply of Consumables
Tender No. IMUV/2024/2020-2021/Laboratories/001 Dated 30-06-2020

PRICE BID

(A) Physics Laboratory Equipment

Sl. No	Name of the Equipment and Technical Specifications	Quantity Nos.	Rate	Total Price	Total Taxes	Grand Total with Taxes (in Figures)	Grand Total with Taxes (in words)
			(Figures in Rupees)				
1	Torsional Pendulum Rigidity Modulus Torsional pendulum with Stand, wire and Accessories Stop Watch: Standard Analog Screw Gauge: 50 – 75 mm Vernier Caliper: 12 Inches Metric Ruler SS scale: 1 meter	4					
2	Normal mode of Coupled Oscillators Coupling springs, Screen on stand etc: Pendulum length: 1 m Spring length: 21 cm Dia: 30mm Constant: 2.5N/m Weights (4): 500g Power supply: o/p: 12v,5v/500mA Detector: Magnetic field sensor PC interface: RS232 Data acquisition unit: LCD display least count: 1 sec Stop Watch - Standard Analog	4					

3	<u>Measurement of Velocity of acoustic waves</u> Resonance tube - Standard size, Tuning fork : ≥ 450Hz, Rubber Mallets, Thermometer : Mercury 110˚c, Beaker: 500ml Metric Ruler SS scale: 1 meter	4					
4	<u>Newton's Rings</u> Newton's Ring Assembly: Minimum Division of reading drum - 0.01mm, Sodium Lamp : Working distance-76mm Beam Splitter: View field -10mm Focusing Knob: Measurement of accuracy 0.01mm, Retard stand: Radius of curvature R=100cm, Beam Splitter	4					
5	<u>Rotation of an optically active source</u> Polari meter : Measuring range of optical rotation : +/- 180 Division Value: 1° Least count: 0.05° Magnifying factor of the magnifying glass : 4 times Monochromatic light source : 5893A° Power line voltage: 220V, 50 Hz Working current: 1.3A Discharging power: 20W Stabilization time: 5 minutes (approx.) A balance: Weighing Balance Measuring Cylinder: 50 ML Beaker : 100 ML Source of Light and Polari meter tube Sodium Vapor lamp : 30W	4					

6	Diffraction with laser Gratings : 100 mm, 200 mm, 300 mm, screen, Laser sources Semi-conductor laser , Optical Bench , screen: Semi -conductor laser (diode laser)	4					
7	Dispersive Power of a Prism Gratings : 15, 000 lines Per inch Prism : 32 x32 Equilateral size Mercury Vapor lamp Reading lens, Spectrometer Spirit level	4					
8	Fresnel Bi-Prism Optical Bench : Source, slit, Bi prism , Stand Sodium lamp Fresnel's Bi prism Convex lens and Micrometer Eye piece	4					
9	Franck -Hertz experiment A mercury filled frank : Saw tooth waveform for CRO display, A neon filled frank hertz tube - Scanning Voltage : 0-80 Scanning A small Heater : Filament Power Supply : 2.6-3.4V continuously frequency : 115±20Hz A control unit for power supply DC Current amplifier	4					
10	Photo Electric Effect Optical filters , Apertures , Caps, Screws, Mercury light source enclosure : Photo Sensitive Device: 1) Vacuum photo tube. 2) Light source: Halogen tungsten lamp 12V/35W.						

	3) Color Filters : 635nm, 570nm, 540nm, 500nm & 460nm Photo diode enclosure Photo electric effect apparatus , Cables & Cords:, Power cord for power supply Power cable for photo electric apparatus BNC connector cable for photo diode enclosure Banana plug patch cords , red and blue Optical Filters Box : Filters: 365 nm , 405 nm , 436nm, 546 nm, 577 nm Optical Filters Box : Aperture -2mm, 4mm & 8mm diameter Caps : photo diode mercury lamp	4					
11	<u>Measurement of Band gap in semi-conductors</u> Semiconductor diode kit : Resistivity of Semiconductors , Four probe method digital display Thermistor : with Meters, Power supply,	4					
	CRO (Cathode ray oscilloscope) : WITH ALT TRIG	4					
12	<u>Measurement of Hall effect</u> Power supply for electromagnets : Gauss meter with hall probes, P type and Ge semi-conductors on PCB (Printed circuit Board), Multi meter and electromagnets,	4					
	CRO (Cathode ray oscilloscope) : WITH ALT TRIG	4					
TOTAL (A)							

(B) Chemistry Laboratory Equipment

Sl. No	Name of the Experiment	Equipment	Quantity Nos.	Rate	Total Price	Total Taxes	Grand Total with Taxes (in Figures)	Grand Total with Taxes (in words)
				(Figures in Rupees)				
1	Conductivity meter with glass electrode	Range : 0uS- 200 mS, Resolution : 0.1uS, Temperature:0 C-100 c (Manual), Readout : 3 digits LED	8					
2	Stop watch		8					
3	Determination of viscosity of a lubricating oil using Red wood viscometer	Red wood Viscometer	2					
TOTAL (B)								

(C) Chemistry Laboratory (Glassware)

Sl. No	Item Description	Volume / Capacity	Quantity Nos.	Rate	Total Price	Total Taxes	Grand Total with Taxes (in Figures)	Grand Total with Taxes (in words)
				(Figures in Rupees)				
1	Burette	50ml (Borosilicate)	35					
2	Pipette	20 ml (Borosilicate)	35					
		10 ml	35					
		5 ml	35					

3	Burette stand	Standard size	35					
4	Conical Flask	250 ml	35					
5	Funnel	75mm Dia	35					
6	White tiles	100 x 100 mm	35					
7	Watch glass	Dia 75mm (2.8inch)	35					
8	China dish	Dia 75 mm	35					
9	Water Bath	500ml	35					
10	Tripod stand	Standard size	35					
11	Micro burette	10ml	35					
12	Beaker	100ml (Borosilicate)	20					
		250ml	20					
		500ml	20					
		1000ml	20					
13	Measuring Jar	5 ml (Borosilicate)	10					
		10ml	10					
		50ml	10					
		100 ml	10					
		500ml (Plastic)	10					
		1000ml (Plastic)	10					
14	Nickel spatula	Standard size	40					
15	Mortar and pestle set	500ml	2					
16	Test tube	20 ml	100					
17	Test tube stand	Plastic	40					
18	Iodine Flask with lid	500 ml	35					
19	Buchner funnel	Porcelain	40					
20	Wire gauze	Standard size	40					
21	Glass rod	10 cm	40					
22	Filler	Standard size	20					
23	Rubber cork	Standard size	40					
24	Thermometer (Mercury)	360º C	15					

25	Brown Bottles	2 Liter capacity	10					
26	Plastic can	3 Liter	10					
		5 Liter	10					
		10 Liter	10					
27	Plastic Bucket withlid	5 liter	10					
28	Brush	Reagent Bottle cleaning brush	20					
29	Test tube holder	Standard size	40					
30	Tongs	Standard size	40					
31	Boiling tube with cork	20 ml	40					
32	Reagent Bottles	100 ml	25					
		250 ml	25					
		500 ml	25					
		1000 ml	25					
33	Safety gloves	Standard size	100					
TOTAL (C)								

(D) Chemistry Laboratory (Chemicals)

Sl. No.	**Name of the Experiment**	**Name of the Chemical**	**Units**	**Quantity**	Rate	Total Price	Total Taxes	Grand Total with Taxes (in Figures)	Grand Total with Taxes (in words)
					(Figures in Rupees)				
1	Estimation of Chloride Ion	Silver Nitrate	grams	100					
		Sodium Chloride	grams	500					
		Potassium Chromate Indicator	grams	500					
2	EDTA Titration	EDTA	grams	500					
		Zinc Sulphate hexahydrate	grams	500					
		Ammonia	litre	5					

		Ammonium chloride	kg	1					
		Eriochrome Black -T Indicator	grams	100					
3	Akalinity	Conc.Hydrochloric acid	litre	5					
		Sodium Bicarbonate	grams	500					
		Sodium Carbonate	grams	500					
		Sodium Hydroxide	grams	500					
		Methyl orange Indicator	ml	100					
		Phenolphthalein Indicator	ml	100					
4	Estimation of D.O.	Sodium Thiosulphate	grams	500					
		Potassium Dichromate	grams	500					
		Potassium Iodide	kg	1					
		Conc . Sulphuric acid	litre	3					
		Manganese Sulphate	grams	500					
		Sodium Hydroxide	grams	500					
		Starch Indicator	grams	500					
5	Estimation of Phosphate	Ortho Phosphoric acid	litre	1					
		Sodium Hydroxide	grams	500					
		Methyl orange indicator	ml	100					
6	Conductometric Titrations	Hydrochloric acid	litre	1					
		Sodium hydroxide	grams	500					
7	Estimation of Ferrous Sulphate	Ferrous Sulphate	grams	500					
		Potassium	grams	500					

		Permanganate							
8	Determination of viscosity of a lubricating oil using Red wood viscometer	Coconut oil, Castor oil ,	ml	250					
9	Estimation of Hydrazine	Hydrazine Sulphate	grams	500					
		Potassium Iodate	grams	500					
		Starch	grams	500					
		Conc. Hcl	litre	3					
10	Estimation of Sulphate	Barium chloride	grams	500					
		Sodium Sulphate	grams	500					
TOTAL (D)									

SUMMARY OF PRICE BID

Sl. No.	Particulars	Total Price Rs.	Total Taxes Rs.	Grand Total Rs.
(A)	**Physics Laboratory Equipment**			
(B)	**Chemistry Laboratory Equipment**			
	Total Equipment >			
(C)	Chemistry Laboratory (Glassware)			
(D)	**Chemistry Laboratory (Consumables**			
	Total Consumables >			
(E)	**Grand Total**			

Signature of the Tenderer with Seal

Date :
Place :