TENDER DOCUMENT

Permanent Equipment (Specifications/detail of items are in bidding document)

Government College University Faisalabad

Please read carefully this tender document and sign & stamp each page.

GOVERNMENT COLLEGE UNIVERSITY FAISALABAD

TENDER DOCUMENT No. 773.30.2023

SUPPLY OF LAB EQUIPMENT FOR THE DEPARTMENT OF MECHANICAL ENGINEERING TECHNOLOGY, GCUF

Purchase Price: Rs. 1000/-

1. INVITATION TO THE BID

Sealed Tenders are invited from the well reputed firms / suppliers, who are registered with Sales Tax and Income Tax Department as Active Tax Payer for supply of Lab Equipment for Department of Mechanical Engineering Technology, GCUF**.**

2. INSTRUCTIONS TO THE BIDDERS

2.1 Tender Opening Date & Procedure:

The procurement shall be completed in accordance with Punjab Procurement Rules 2014, on **Single Stage - Two Envelope** Bidding Procedure.

Bids in complete conformity with Tender Documents will be dropped in the office of Director Procurement & Inventory Control, GC University Faisalabad, not later than **11:00 Hrs** on **16.04.2024** which shall be opened on same day at **11:30 Hours**.

Note: Tender Number must be mentioned on envelope.

2.2. Bidders must ensure that they submit all the required documents indicated in the Tender / Bid Documents at the time of opening of Technical Bids and no request for submission of missing documents will be entertained after opening of the Technical Bids (related to any change specifications of equipment).

2.3. Item would be purchased on FOR basis, payment will be made in PAK Rupees.

2.4. It will be clearly understood that the Terms and Conditions mentioned in this document are intended to be strictly enforced.

2.5. Bids without supporting documents, undertaking, valid documentary evidence, and bids not conforming to terms and conditions given in the Tender Document will be liable for rejection. Bids received after due time and date and bids without Bid Security in shape of CDR or CDR less than required amount or Bid Security in shape of Cheque or Cross Cheque shall be rejected.

3 Tender Fee, Bid Security and Performance Security:

The Bid must be accompanied by Tender Fee of Rs:1000/- in shape of Call Deposit Receipt (CDR) in original or deposit slip and **Bid Security @ 2% (i.e. 36,864/-) of Estimated Price i.e.**

"1,843,160" PKR" (refundable) in shape of Call Deposit Receipt (CDR) in original. CDRs must be in favor of treasurer Government College University, Faisalabad. The rates / bids should be inclusive of all applicable Govt. Taxes.

4 Validity of Offers.

i. Offers shall be valid for 90 days from the date of submission of bids.

ii. Withdrawal / modification of the original offer within the validity period shall entitle the University to forfeit Bid Security.

iii. Sales Tax Number and NTN Number must be mentioned on the letter head and bidding documents.

BID DATA SHEET (Information for the Bidders)

1	Procuring Agency	Government College University Faisalabad
2	Tender Number	773.30.2023
3	Name of Tender	Supply of lab equipment for Department of Mechanical Engineering Technology, GCUF
4	Tender Document available place	Director Procurement & Inventory Control, GC University Faisalabad
5	Cost of Tender Document	**Rs.1000/-** CDR*or*Pay Order in favor of the Treasurer GC University Faisalabad
6	Bid Security	Amount mentioned in Clause No. 3 of the Tender Document in shape of CDR i.e, Pay Order etc, in favor of "Treasurer GC University Faisalabad"
7	Performance Guarantee	2 % of the order value / the firm may also request to convert the bid security as Performance Guarantee
8	Performance Security	10% deducted from final Bill for Permanent Goods only & will be released upon successful completion of warranty period
9	Tender Addressed to	Director Procurement & Inventory Control, H Block , Allama Iqbal Road, Government College University Faisalabad
10	Contact Number	Ph. 041-9201468
11	Due Date, Time and place	**16-04-2024 till 11:00 AM** Director Procurement & Inventory Control,

	of submission of Tender	GC University Faisalabad
12	Date, Time and Place of Technical Bid Opening	**16-04-2024 at 11:30 AM** at Director Procurement & Inventory Control, GC University Faisalabad
12	Date, Time and Place of the Financial Proposals	Shall be intimated subsequently to Technically Qualified firms

5 Other Special conditions

5.1 The decision of the Vice Chancellor of Government College University, Faisalabad, would be final & binding on both the parties.

5.2 Cheque or Cross Cheque shall not be accepted at all.

5.3 The amount submitted as Bid Security shall be refunded to the unsuccessful bidders after the decision for the award of the said tender.

5.4 The Bid Security of Successful Bidder(s) may be converted as part of the Performance Security for successful execution of the work.

5.5 Subject to the delivery of goods against the Supply Order, the Bid Security in form of CDR shall be returned to vendor.

5.6 If the Bid Security is found less than the required amount then the bid will be rejected irrespective of the rates and the stage of the bid process.

5.7 The Bid Security may be forfeited if a Bidder refuses to accept supply order of the Bid

5.8 Firms having authorization letter from manufacturer for this equipment would be preferred.

5.9 **Model number, country of origin and Company name must be mentioned on both technical and financial bid.** Technical brochure must be attached (if any).

5.10 10% performance security applicable under the rules shall be deducted from the final bill of the successful bidder.

5.11 All Government Taxes will be deducted according to applicable rules.

5.12 The University may reject all bids/proposals at any time prior to the acceptance of a bid or proposal as per PPRA Punjab rule 35, however upon bidder request the ground of rejection will be communicated to the concerned but no justification will be given as per PPRA rule 35 (2).

6.0 Suppression of facts and misleading information

During the bid evaluation, if any suppression or misrepresentation of information is brought to the notice of the Purchase Committee, the Committee shall have the right to reject the Bid and if it happens so after selection of the Bidder, the Purchase Committee may terminate the supply order or award of the supply order or further processing of the Bid as the case may be and that will be without any compensation to the Bidder and the Bid Security/Performance Guarantee, as the case may be, shall be forfeited.

7. BID OPENING

7.1. Technical Proposal Opening

The bid's outer cover and Technical Proposal cover will be opened by the Central Purchase Committee on the date and time as specified in the Tender Notice /Bid Data Sheet. The bids will be opened in the presence of the bidders who choose to be present. A maximum of two representatives for each bidder would be allowed to attend the Bid Opening. Technical Specifications are given in Appendix 1.

7.2 FINANCIAL PROPOSAL

7.2.1 The Financial Proposal of the bidder shall also include the price break up of taxes/duties as given in Appendix 2. All taxes/duties as applicable shall be responsibility of the bidders.

7.2.2. The cost quoted by the bidder shall be kept by firm and unchanged for a period specified in the Bid/Tender Documents from the date of opening of the bids. The bidder shall keep the price firm/unchanged during the period of Contract including during the period of extension of time if any.

7.2.3. The quoted price will be inclusive of all taxes, duties, levies, insurance, freight (transportation charges), etc.

7.2.4. For items to be imported on the name of University, Bidder will bear the Clearance and transportation Charges for delivery at site.

7.2.5. The Bid is liable for rejection if Financial Proposal contains conditional offer.

7.2.6 Any cutting/ over writing shall not be accepted in the financial offer.

Appendix "A"

Technical Specifications

SUPPLY OF LAB EQUIPMENT FOR DEPARTMENT OF MECHANICAL ENGINEERING TECHNOLOGY, CUF.

Sr#	Name of Equipment	Detailed Specifications OR Equivalent	QTY
1	**Cam and Follower Mechanism Apparatus**	• Function of cam mechanisms. • 4 different shapes of cam: circular, arc, tangent, hollow or asymmetric. • 3 different engaging members: roller, plunger, flat plunger or cam follower. • Cam and engaging member can be exchanged without tools. • Dial gauge for determining the stroke. • Angular scale for determining the angle of rotation. • Simulation Software for monitoring parameters via USB under Windows 7, 8.1, 10 (Optional) **Technical Data:** • Angular scale: o 0 to 360°. o Graduation: 1°. • Dial gauge for the stroke: o 0 to 30mm. o Graduation: 0.01mm. • LxWxH: 160x160x300mm. • Weight: approx. 7kg. **Experimental Data:** • Elevation curves in cam mechanisms • Cams come in different shapes • Circular arc, tangent, hollow, asymmetric • Optionally with roller plunger, flat plunger or cam follower as engaging member	01
2	**Pressure Measurement Bench**	**Specifications: OR Equivalent** • U-tube and inclined tube manometer. One Bourdon tube pressure gauge each for positive and negative pressure. One Pressure Transducer with digital display. • Plastic syringe generates test pressures in the millibar range.	01

		• Calibration device with Bourdon tube pressure gauge for calibrating mechanical manometers included in the scope of delivery.
		
		Technical Data:
		• Inclined tube manometer: angle 30°.
		• Measuring ranges:
		  • Bourdon tube pressure gauge: 0 to 100mbar / -100 to 0mbar.
		  • U-tube manometer: 0 to 500mmWC. And Inclined tube manometer: 0 to 500mmWC.
		  • Pressure Transducer: 0 to 1000mBar
		• Dead weight Pressure Calibrator included, and Air compressor Unit (Optional)
		Experimental Data:
		• Comparison of pressure measurement by manometer, Bourdon gauges and Pressure Transducer.
		• Calibration of a pressure gauge.
		• Determination of gauge errors as a function of true pressure.	

3	**Mechanical Heat Pump**	**Specifications OR Equivalent** • Compressor Type: Hermetic • Refrigerant: R-134a • Swept Volume: 8.85 cm3/rev • Compression Speed: 2800 RPM • Condenser Type: Plate Heat Exchanger • Medium: Water • Evaporator Type: Fan Cooled / Continuous Tube / External Finned • Expansion Valve Type: Thermostatic • Energy Meter • Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables. • DAQ Software for monitoring and control. • Include units including Compressor, Condenser (Shell and coil or plate type), Liquid Receiver, Evaporator (Shell and coil or plate type), Digital Thermometers, Flow Meters, Pressure Gauges, Electrical Energy Meter • Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables. • DAQ Software for monitoring and control.	

		· Graphical visualization. · Security mechanism for login. · USB Connected · Compatible with Windows 7,8.1,10. • Digital Instrumentation • Capability to modify according to end user. • Can be used in Research Purposes. **Experimental Capabilities** • Determination of power Input, heat output and coefficient of performance • Production of heat pump performance curves over a range of source and delivery temperatures • Production of the vapour compression cycle on a p-h diagram and comparison with the ideal cycle • Determination of energy balances for the condenser and compressor • Production of heat pump performance curves based on the R134a properties at a variety of evaporating and condensation temperatures • Estimation of the effect of compressor pressure ratio on volumetric efficiency.	
4	**Multi Heat Exchanger Service Unit**	**SPECIFICATIONS: OR Equivalent** • Complete stand-alone unit to demonstrate and measurement of different Heat exchangers. • Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables. • DAQ Software for PC Connect and Data measurement and Calculations • supply unit for heat exchangers • hot water circuit with tank, heater, temperature controller, pump and protection against lack of water • cold water circuit from laboratory mains or water chiller • temperature controller controls the temperature of hot water • flow adjustable using valves • digital displays for 6 temperature and 2 flow rate sensors • water connections with quick-release couplings • stirring machine connection with speed adjustment	01

		TECHNICAL DATA:
		
		• Pump
		• power consumption: 120W
		• max. flow rate: 600L/h
		• max. head: 30m
		• Heater
		• power output: 3kW
		• thermostat: 0 to 70°C
		• Hot water tank: approx. 10L
		•
		Measuring ranges
		
		• temperature: 6x 0 to 100°C
		• flow rate: 2x 20 to 250L/h
		• Measuring Display
		  • Touch LCD With GUI (Graphical User Interface)
		• Voltage Supply:
		  • 230V, 50Hz 1Phase.
		• Digital Instrumentation
		• Can be used in Research Purposes	

4.a	**Concentric Tube Heat Exchanger**	• All the Water contact parts are made of PVC, Brass, Copper or Stainless Steel to avoid corrosion • Exchange length: L = 2 x 0.5 = 1 m. • Internal tube: • Internal diameter: 8mm. • External diameter: 10mm. • Thickness = 1mm. • Internal heat transfer area: 0.0377 m2. • External heat transfer area: 0.0471 m2. • External tube: • Internal diameter: 13~14mm. • External diameter: 15 ~16mm. • Thickness = 1~1.5mm. • Temperature sensors **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	01
4.b	**Plate Heat Exchanger**	Formed by stainless steel plates. Plates are sealed a detailed structure layout is mentioned in the diagram attached to apparatus. 2 ports as input for hot and cool water and two port as output for hot and cool water.	01

		Dimensions: 70mm * 200mm *45mm Maximum flow: 30 Cu-m /h. Maximum work pressure: 30 bar. Maximum work temperature: 120 C. Minimum work temperature: 4C for Water and -30 for Gases. Maximum number of plates: 10 or more. Internal circuit capacity: more than 0.250 liters. External circuit capacity: 0.250 Liters. Area: More than 0.400 m-Sq. 4 Temperature sensors 2 Temperature sensors for measuring cold water temperature (inlet and outlet). 2 Temperature sensors for measuring hot water temperature (inlet and outlet). **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	
4.c	**Shall and Tube Heat Exchanger**	Formed by tubes of stainless steel with hot water circulating in the interior. All the contact part with water are made of Glass, Stainless Steel or Plastic to avoid the corrosion. 6 segmented baffles located transversal in the glass shell. Exchange length of the shell and each tube: L = 0.5m. Internal tube (21 tubes): Internal diameter: D = 8 ~ 9 mm External diameter: D = 10 • 11 mm Thickness = 1~2mm Internal heat transfer area: A = 0.0126 m-Sq Approx External heat transfer area : A = 0.0157m-Sq Approx Shell: Internal diameter: D = 0.148 m. approx External diameter: D = 0.160 m. approx	01

		Thickness = more than 6 mm. 4 Temperature sensors 2 Temperature sensors for measuring cold water temperature (inlet and outlet). 2 Temperature sensors for measuring hot water temperature (inlet and outlet). Optional: Sensors at different point of heat exchange. **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	
4.d	**Jacket Vessel with stirrer & Coil Heat Exchanger**	Constituted of a vessel. Vessel total volume: 14 liters. Interior vessel volume: 7 liters. approx. Jacket volume: 7 liters. approx. An overflow or a pipe that allows the exit of the water in the vessel through its upper part to maintain a constant flow during the process with continuous supply. A jacket that surrounds the vessel through where hot water flows. An electric stirrer with a stirring rod of propeller shape and a turn range between 50 and 300 rpm. 4 Temperature sensors: 2 Temperature sensors for measuring cold water temperature. 2 Temperature sensors for measuring hot water temperature. **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	01
4.e	**Coil Type Heat Exchanger**	Internal Coil tube Diameter = 4.35 mm. External Coil tube Diameter = 6.35 mm. Total length of the tube that forms the coil: upto 5 m. Total diameter of coil: more than 100mm. An electric stirrer using a stirring rod forming a propeller and with a turn range between 50 and 300 rpm.(If Vessel Type) 4 Temperature sensors 2 Temperature sensors for measuring cold water temperature. 2 Temperature sensors for measuring hot water temperature.	01

		General Requirements Heat Exchange Service Unit with Touch LCD and DAQ	
4.f	**Water to Water Turbulent Flow Heat Exchanger**	• All the Water contact parts are made of PVC, Brass, Copper or Stainless Steel to avoid corrosion • Exchange length: L = 2 x 0.5 = 1 m. • Internal tube: • Internal diameter: 8mm. • External diameter: 10mm. • Thickness = 1mm. • Internal heat transfer area: 0.0377 m2. • External heat transfer area: 0.0471 m2. • External tube: • Internal diameter: 13~14mm. • External diameter: 15 ~16mm. • Thickness = 1~1.5mm. • Temperature sensors **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	01
4.g	**Coiled Concentric Tube Heat Exchanger**	Inner Tube Material: Copper Inner Tube Outside Diameter: Ø21.4mm Inner Tube Wall Thickness: 1mm Outer Tube Material: Steel Outer Tube Inside Diameter: Ø19.4mm Outer Tube Wall Thickness: 1mm Active Heat Transfer Section: 1610 (L) mm x 108000mm2 **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	01
4.h	**Water to Air Heat Exchanger**	Heat output 300w approximately Utilises self-sealing quick release connectors 16 row 124 x 115mm heat exchanger (core) 119mm square fan Variable speed fan **General Requirements** Heat Exchange Service Unit with Touch LCD and DAQ	01

Appendix "B"

Financial Offer

TENDER NOTICE No. 773.30.2023

SUPPLY OF LAB EQUIPMENT FOR DEPARTMENT OF MECHANICAL ENGINEERING TECHNOLOGY, GCUF.

1	2	3	4	5	6		7	11	12
Sr. No.	Equipment Name With accessories as per technical bid	Model / Part #	Brand / Manufacturer Name/Country of origin	Qty	Currency Description (e.g. USD, EURO, ,PKR etc)	Unit Price	Rate of Sale TAX	Total Price (PKR) including GST etc	2% Bid Security (PKR) as per Estimated Price

Note: Rate should also be quoted on Firm's letter head pad.

8 REJECTION AND ACCEPTANCE OF THE TENDER/BID

8.1. The Purchase Committee has the right, at his exclusive discretion, to increase / decrease the quantity of any or all item(s), under PPRA Rules 2014 without any change in unit prices or other terms and conditions, accept a Tender reject any or all tender(s), cancel / annul the Tendering process at any time prior to issuance of supply order, without assigning any reason or any obligation to inform the Tenderer of the grounds for the Purchaser's action, and without thereby incurring any liability to the Tenderer and the decision of the Purchaser shall be final.

Failures and Terminations:

No offer of a supplier / firm will be considered if:-

a. Bid received without Bid Security / Call Deposit or less CDR than the required.
b. Bids received not in accordance with specifications of Tender Documents.
c. Bid received later than the date and time fixed for tender.
d. Tender is incomplete in any respect or is unsigned.
e. Offer is ambiguous and the offer is conditional.
f. Offer from a firm which is black listed at any level.
g. Any erasing / cutting / overwriting etc.
h. The supplier fails to deliver the consignment within specified delivery period strictly in accordance with the terms and conditions as laid down in the Purchase Order.
i. Situation warranted, then University is authorized to forfeit the bid Security and the firm may also be black listed.

8.2. The Tender / bid shall be rejected if:

8.3. It is substantially non-responsive; or

8.3.1 There is any discrepancy between bidding documents and bidder's proposal i.e. any non-conformity or inconsistency or informality or irregularity in the submitted bid; or

8.3.2. The Bidder submits any financial conditions as part of its bid which are not in conformity with tender document.

9. DELIVERY TIME & PAYMENT

Delivery time shall be 30 to 45 days as per nature of good and extendible subject to request of firm on proper grounds with the approval of the Competent Authority. LD charges shall be levied on late delivery period @ 2.0 % per month- 0.067 % per day.

100% payment will be made to the Successful Bidder after delivery and installation of goods and on receipt of the following documents:

i. Bill

ii. Delivery Challan

iii. General Sales Tax Invoice

iv. Installation report / Inspection Report

Director

Procurement & Inventory Control, GC University Faisalabad

Government College University Faisalabad

ISSUED TO:

M/S ----------

Details of Call Deposit Receipt (CDR) **Signature**_____

No_____ **Amount**_____ **Name of Bidder**_____

Bank_____ **Branch** _____ **City**_____ **CNIC No** _____

Name of the Firm & Address _____**Contact** ----------

N.T.No. _____ **Sales Tax No.**_____

Issued By:

Director
Procurement & Inventory Control
Government College University Faisalabad
041-9201468