Gautam Buddha University

Greater Noida – 201 310

Website : www.gbu.ac.in

BID FORM

FOR THE SUPPLY OF EQUIPMENTS FOR FLUID MECHANICS LABORATORY

OF

SCHOOL OF ENGINEERING

Gautam Buddha University
Greater Noida – 201 310

TENDER FOR SUPPLY OF EQUIPMENT FOR FLUID MECHANICS LABORATORY OF SCHOOL OF ENGINEERING

Tender	**Supply of Equipment for Fluid Mechanics Laboratory**
Opening Date	13th May 2011
Closing Date	13th June 2011 upto 3.00 p.m.
Last date of Bid Submission	13th June 2011 upto 5.00 p.m.
Technical Bid Opening Date, Time & Place	14th June 2011 at 3.00 p.m. Venue : Conference Room of the Registrar Office, 1st Floor, Administrative Building, G.B.U., Gr. Noida.
Earnest Money Deposit	2% of the offered cost
Completion Period	Within 10-12 weeks from the date of Purchase Order issued
Bid System	Two Tier : 1) Technical Bid 2) Financial Bid
Technical Bid Shall Contain	i. Technical specifications of each equipment quoted ii. All documents in support of commercial terms & conditions and eligibility criteria. iii. Bidders Proforma iv. EMD & Tender Fee demand drafts / pay orders.
Financial Bid	The Financial Bid shall contain rate schedule only. The price shall be in words as well as in numeric numbers.

"TECHNICAL BID (BIDDER'S PROFORMA)"
(To be submitted in separate envelope)

1. Name of the firm: ……
2. Date of incorporation……..
3. Name of the company – Government / Public Ltd. / Private Ltd. / Partnership / Proprietorship : ……
4. Specify the number of years in this line of activity by the company:……..
5. Sales Tax/VAT registration No. (please attach certificate) : ……
6. Experience (in year) of supplying & installation for similar software to IITs, NIT's or Central Universities or any Academic Institute of National Repute (please attached certificate/P.O.) : ……..
7. Turnover in the last three financial years (Figures should be in Indian Rupees in Lakhs; please attach the certified copies of balance sheet with trading, profit & loss account) : (if the figures for 10-11 are not available then they may furnish balance sheet of year 07-08)

2008-09	2009-10	2010-11

8. Provide the postal address, telephone & fax numbers, and email address of the nearest service center : ……
   ……..
9. Mention delivery period from the date of the placement of an official purchase order : ……..
10. Enclose the list of customers to whom you have supplied /serviced during the last 3 years ending 31/03/2011 with full postal address and name of the contact person with phone, FAX numbers, and E-mail-id, billing amount etc. Certificate regarding satisfactory performance from the minimum three end users should be furnished.
11. Are you the manufacturer / authorized dealer / distributor/ reseller for the product quoted (please attached relevant certificate): ……..
12. Was there any lapse or delay in supplying the goods ordered or any service related issue during the warranty period for the products supplied by your firm to different Institutes/Universities during last three years? If yes, provide details.
13. Deviations in specifications, if yes, please mention in separate sheet.
14. Whether technical specification are attached with Technical Bid or not. Yes/No

DECLARATION

1. The rates quoted in financial bid are inclusive of all taxes, packing, handling and installation charges.
2. The information given in the financial bid by the undersigned is correct.

(SIGNATURE OF THE BIDDER)
WITH SEAL

NAME : ……

ADDRESS : ……

: ……

: ……

Tel./Mobile No. : ……

Note: The financial bid is required to be submitted separately in a sealed cover super scribing as 'Supply of Equipments for Fluid Mechanics Lab. of School of Engineering".

Annexure : 'A'

Gautam Buddha University

School of Engineering

TECHNICAL SPECIFICATIONS: FLUID MECHANICS LABORATORY

S.N.	ITEM	TECHNICAL SPECIFICATIONS
1.	**Unit for study and comparison of pressure measurement devices**	• To comprise a vertical bench-top steel panel with integral vertical and inclined U-tube manometers and 2x bourdon type gauges, and mounting frame • Inclined U-tube manometer to have 54^{o} incline • Manometer scales to be in mm • To include 1x bourdon gauge for positive pressure and 1x bourdon gauge for negative pressure with +/- 550 scales • To include separate dead-weight calibration apparatus • Dead-weight calibrator to include a transparent internal mechanism for visualisation • To be supplied with a syringe to create positive and negative pressure • To be supplied with a comprehensive user manual including Introduction, Experimental procedure, Calculations, Discussion of results, Questions for further work, an maintenance instructions • To include Selection of weights, T pieces, Artery clamps, funnel and nylon tubes • Nett dimensions to be: Manometer and gauge assembly – 700 x 600 x x650mm, Pressure gauge calibration assembly to be 270 x 160 x 270mm • Operating temperature range to be $+5^{O}$C to $+40^{O}$C • Operating relative humidity range to be 80% at temperatures < 31^{O} C decreasing linearly to 50% at 40^{O}C.
2.	**Unit for Flow Measurement & Bernouli's equation.**	• T o include Venturi meter, orifice plate and rotameter • Direct measurement of head loss • Three different flow meters that work with Bernoulli's equation • Multitube manometer shows pressure at various points • Nett dimensions: 900 mm x 380 mm x 900 mm • Orifice plate: 20 mm diameter with corner tappings, manufactured to BS1042 • Rotameter:: Scaled 0 to 210 mm. Includes calibration chart for 0 to 35 litres per minute. • Manometer: Scaled 0 to 380 mm • Maximum flow:28 litres per minute • To consist of a horizontal pipe containing a gate valve, Venturi meter, orifice plate and pressure tappings, connected with an elbow to a rotameter (gap type flowmeter) • To be mounted on a precision engineered steel base plate with mimic diagram. • Sudden enlargement to be from 21mm to 51mm. • To be supplied with water from a Gravimetric or Volumetric Hydraulics Bench. • Manufactured in accordance with the latest European standards

S.N.	ITEM	TECHNICAL SPECIFICATIONS
		• Supplied with a comprehensive user manual including theory, experiments and sample results.
3.	**Unit for Discharge over a Notch**	• A bench-mounted experiment for study of weirs as flow regulation and measurement devices • To consist of portable, corrosion resistant glass fibre channel, comprising of a wide (inlet) section and a deep (outlet) section • To include one rectangular and two V section notches • Rectangular notch to be 100mm deep x 30mm wide • V notches to be 100mm deep, one with a 30º notch angle, the other with a 90º notch angle • Channel dimensions 228mm x 178mm x 305mm nominal • Nett dimensions 920mm x 620mm x 520mm nominal • Maximum flow to be 62 litres per minute through the rectangular notch • To be supplied with water from a Gravimetric Hydraulics Bench • Manufactured in accordance with the latest European standards
4.	**Experimental setup for head loss in Pipes due to sudden contraction & expansion**	• Apparatus to investigate losses in various typical fittings over a range of flow rates. • The equipment provides a run of pipework, made up of components manufactured in rigid plastic material, supported in the vertical plane from a baseboard with a vertical panel at the rear. • This bench-top apparatus uses smooth plastic tubing, commonly used in domestic and other small-bore water systems. • On the base of the apparatus is a diagram which shows the main dimensions of the pipework and fittings. • Included is a hand-pump to adjust the datum of the piezometers • Compact unit • Direct comparison of principal pressure drops • Includes three different bends • Includes a multi-tube piezometer for fundamental, accurate pressure measurements • Bends and fittings: 90-degree mitre bend small radius, 90-degree elbow bend, 14 mm centre line radius • Large radius, 90-degree bend, 45 mm centre line radius • Sudden expansion, 22.5/29.6 mm inside diameter • Sudden contraction, 29.6/22.5 mm inside diameter
5.	**Unit for the visualization and study of Laminar and Turbulent flow and Reynolds' Number**	• To comprise a floor standing moulded fibreglass base with a vertical test pipe • Test pipe to be a precision bore 12mm internal diameter glass tube of approx. 1m length • To have a glass header tank with diffuser inlet located under a bell-mouth entry to the test tube • Water to pass through a stilling bed of glass beads above the diffuser to create uniform flow conditions • Flow control valve to be located at the test pipe outlet • To include an integral dye reservoir with fine injection tube and valve • To include a 0.5 Litre measuring cylinder with 50ml graduation • To be supplied with a separate free-standing temperature control module with 7.5kW heater, with earth leakage protection and over-temperature cut-out • Nett dimensions: 700mm base width, 400mm base front to back, 1500mm high • Supplied with a comprehensive user manual including List of symbols,

S.N.	ITEM	TECHNICAL SPECIFICATIONS
		Introduction, Description of the apparatus, Assembly and Installation, Theory, Experimental Procedure and Test Results • Operating relative humidity range: 80% at temperatures < 31°C decreasing linearly to 50% at 40°C • A free-standing unit to vary and control the water temperature and hence its viscosity. • To be manufactured by an ISO9001 quality accredited company. • To be supplied with a compatible water heater module 360 mm wide x 450 mm high x 330 mm front to back and 10 kg weight.

Annexure : 'B'

Gautam Buddha University

School of Engineering

TECHNICAL SPECIFICATIONS: FLUID MECHANICS LABORATORY

S.N.	ITEM	TECHNICAL SPECIFICATIONS
1.	**Comprehensive system for studying a wide range of Hydrostatics and Properties of Fluids experiments**	• To comprise a floor standing moulded bench, with the following experiments: • Reservoir tank with hand pump • Drain tray • Vernier hook gauge • Fluid level apparatus: 4 off interconnected glass tubes of varying cross sections and shapes • Pressure gauge: Bourdon type with visible mechanism and dead weight calibrator • Manometers: 2 off U-tubes • Capillarity apparatus: glass tubes of various bores, glass plates with plastic shims for various separations • Calibrated hydrometer • Measuring cylinder • Graduated beaker • Timer • Floating rectangular pontoon with adjustable centre of gravity o To include a rectangular floating pontoon with a plastic sail, with five rows of 7.5mm V-slots at equi-spaced heights on the sail o Working height of sail: 240mm. o To be supplied with a 535g adjustable sail weight. o Angular tilt of pontoon to be nominally 8° each side of the vertical line. o Manufactured in accordance with the latest European standards o Supplied with a comprehensive user manual including theory, experiments and sample results. • Specific gravity bottle • Air pump • Three-beam balance • Centre of pressure tank and balance o Quadrant dimensions: Inner radius 100mm, Outer radius 200mm, Breadth 75mm. o Balance arm radius to be 200mm. o To be supplied with 1x 20g, 5x 50g and 2x 200g slotted weights. o To be supplied with 1x 50g weight hanger. o To include water colouring. o To be supplied with a spirit level. o Manufactured in accordance with the latest European standards o Supplied with a comprehensive user manual including theory, experiments and sample results. o To be supplied with the textbook 'A first course in hydraulics' by an eminent professor. • Small bore tube for friction demonstrations • Archimedes' mass • Various ball bearings • Single limb barometer

S.N.	ITEM	TECHNICAL SPECIFICATIONS
		• To be supplied with a Compatible Surface Tension Balance – Searle's torsion balance with scale and pointer for the determination of the surface tension of liquids. • To be supplied with Compatible Hares Tube Apparatus – Hares tube to establish the specific gravity of a liquid when compared with water. • To be supplied with 1 Kg of Mercury as consumable.
2.	**Falling Sphere Viscometer and Drag Coefficient measuring unit.**	• To accurately determine drag coefficient and viscosities by variety particle comparison method. • Anodized aluminium structure with main metallic elements in stainless steel. • Diagram in the front panel with similar distribution that the elements in the real unit. Support panel with 2 Precision transparent methacrylate tubes of 125 mm diameter and 1500 mm length. • With two liquids with different viscosities inside the tubes. Upper part of the tubes to contain a device for introducing particles to be tested. Bottom part of the tubes to contain a device for recovering the tested bodies, without emptying the tubes. • Fluorescent tube for a better visualization of the particles. With 2 vats and 2 valves for recovery of the balls and draining of tubes. • With 1 set of balls (spheres) of various diameters and materials (stainless steel, aluminium, plastic). Falling particles / spheres to be clearly visible.
3	**Unit for Jet Trajectory and Flow Through an Orifice**	A Jet Trajectory and Flow Through an Orifice apparatus which allows to measure: • Decrease in flow • Contraction of the stream • Energy loss • They make these measurements as water discharges from four vertically mounted, interchangeable nozzles with different throat (orifice) designs. It also allows students to study the trajectory profiles of water jets from the nozzles when mounted horizontally. • Three basic experiments are to be possible: (i) Measurement of Cd, Cu, Cc at constant head (ii) Variation of discharge with head (iii) Determination of jet trajectory and comparison with simple theory. • Several orifices and nozzles are to be available so that the influence of the actual jet producing shape can be studied. • Each 'Nozzle' has a different 'Orifice'. The whole unit is the Nozzle, the orifice is the internal constriction of the Nozzle • The apparatus enables the trajectory of jets to be investigated by using the side entry feature with the fixture at the bottom of the base sealed. • Four interchangeable nozzles with different throat (or orifice) designs • Nozzles mount vertically and horizontally • Simple and clear plotting of horizontal jet trajectory • Direct measurement of total head, head loss and diameter of jet • Integral Pitot traverse tube • Maximum head:365 mm • Maximum flow rate: Nominally 13 litres per minute • Orifice/nozzles: • One sharp-edged orifice and three nozzles
4	**Unit for the study for flow measurement using and calibration of a Pitot Tube, Orifice Meter, Venturi Meter and Nozzle, and demonstration of the boundary layer effect**	• To comprise a bench mounted unit with manometer panel, to be mounted on the volumetric or gravimetric hydraulics bench • To be supplied with a Pitot-tube, Venturi meter, orifice and nozzle for mounting between the quick fit adaptors on the base of the unit • To include 4x water manometers to display pressure difference at the flow meter and across the flow meter assembly • Manometers to have a common glass manifold with an air valve • Manifold to be pressurised with the supplied hand pump to offset the manometer

S.N.	ITEM	TECHNICAL SPECIFICATIONS
		• To demonstrate the boundary layer effect and fluid velocity profile • Water supply to be provided by the volumetric of gravimetric hydraulics bench • Compatible Pitot tube: Nett dimensions: 484 mm x 230 mm x 100mm and 0.75 kg • Compatible Venturi : Nett dimensions: 484 mm x 130 mm x 80 mm and 1.5 kg • Compatible Orifice : Nett dimensions: 484 mm x 130 mm x 80 mm and 1 kg • Compatible Nozzle : Nett dimensions: 484 mm x 130 mm x 80 mm and 0.6 kg • Operating relative humidity range to be 80% at temperatures < 31 ^{O}C decreasing linearly to 50% at 40 ^{O}C
5	**Venturi meter Unit**	Full study of the pressure distribution along the convergent-divergent passage. Because these benches measure absolute flow rate, students can find the Venturi meter coefficients over a range of flow conditions. • Comprehensive study of a Venturi meter and Bernoulli's Theorem • Direct measurement of the static head distribution along a Venturi tube • Comparison of experimental results with theoretical predictions • Measurement of the meter coefficient of discharge at various flow rates • Packed dimensions and weight: 0.14 m3 and 15 kg • Textbook: 'A First Course in Hydraulics' by Emeritus Professor E. Markland • Robust circular-section Venturi tube • Eleven pressure tappings along the tube • Direct measurement of static heads • Complete pressure distribution clearly visible • Maximum flow rate: Nominally 27 L.min–1 • Venturi tube material: Aluminium • Inside diameter of Venturi inlet: 26 mm • Inside diameter of Venturi throat: 16 mm • Inside diameter of Venturi outlet: 26 mm • Pressure tappings: 11 • Manometer scale: Millimetres • Manometer tube range: 0 to 290 mm • Accessories (included): Hand-pump, outlet tubing, pipe clips

6.	**A floor standing unit for studying cavitation**	• To consist of a self-contained mobile unit with an integral water tank, electric pump, a flow-control valve, a flow meter and a Venturi
		• Maximum pump flow rate to be 80 L.min^{-1} at 20.2m head
		• Maximum flow rate on apparatus 50 L/min
		• Maximum pump power to be 1kW
		• Maximum water tank capacity to be 80 Litres, nominal 45 Litres
		• Flowmeter 5 L/min to 75 L/min
		• Venturi to have throat 6mm x 6mm, upstream section (Inlet) to be 35mm x 6mm
		• To include two pressure gauges to display inlet and downstream pressures
		• Operating temperature range to be +5^{O}C to +40 ^{O}C
		• Operating relative humidity range to be 80% at temperatures < 31 ^{O}C decreasing linearly to 50% at 40 ^{O}C
		• To be supplied with a Stroboscope:
		  ○ Flash Tube Xenon filled
		  ○ Flash Rate: 60 to 7500 flashes per minute continuous
		  ○ Back-lit LCD in either flashes per minute, hertz or milliseconds
		  ○ *Accuracy:* Better than 0.1%.
		  ○ *Flash energy:* At least 0.11 J
		  ○ Display parameters FPM/MS/ HZ
		  ○ Digital display of flash speed
		  ○ Both internal and external trigger

7.	**Real Time Computer Controlled Experimental**	• The Unit to consist a Compatible Mobile Hydraulic bench, Centrifugal pump of 0.37kw, 30-80L/min at 20.1-12.8m, single phase 220v/50hz, runner made in

S.N.	ITEM	TECHNICAL SPECIFICATIONS
	setup of Pipe flow Measurement for coefficient of friction losses due to friction in pipe lines, due to different diameters, bend, sudden contraction & expansion	stainless steel, Sump tank capacity 165 litres, small channel 8litres and with real time computer control . • With anodized aluminium structure and panels in painted steel (epoxy paint). Main metallic elements in stainless steel. • Diagram in the front panel with similar distribution to the elements in the rear unit. Pipe network. Lateral panel where all test elements are to be are located. • Test pipes: Aluminium pipe, 16 mm outer diameter. PVC pipe, 25 mm outer diameter. PVC pipe, 16 mm outer diameter. PVC pipe, 20 mm outer diameter. Methacrylate pipe, 16 mm outer diameter. Test Connections: Connection of 4 pipes with drain or outlet valve. Connection of 3 pipes Straight connection of a pipe with outlet valve. Pipe connection with outlet pipe in the shape of a siphon. Connection of 2 pipes with outlet valve. (3 units). Connection of 2 pipes with pressure taking. Connection of 2 pipes without pressure taking. 2 Differential Pressure sensors, range: 0-1000 mm (0.5 accuracy). 2 Pressure sensors, range: 0-2 bar. Pressure takings in the test elements. Flow sensor, range: 0-80 l./min. • Valves for distributing the flow to the network. With Control interface box with process diagram in the front panel and with the same distribution that the different elements located in the unit. The unit control elements are to be permanently computer controlled. Calibration of all sensors involved in the process. • Shield and filtered signals to avoid external interferences. Real time computer control with flexibility of modifications from the computer keyboard of the parameters, at any moment during the process(open control). Analog input: 16 Nos. Of channels. Analog output:02 Nos.of channels. With a PCI Data acquisition board to be placed in a computer slot. Along with a Compatible Data Management & fault simulator Softwares, Cables, Accessories & Manuals.
8.	**Hydrogen Bubble based Flow Visualization setup for boundary layer theory.**	• To be a bench-top compact unit comprising of a flow tank & hydrogen bubble generator which has been designed for direct flow visualisation of fluid mechanics phenomena. Hydrogen bubbles to be generated by an interchangeable fine platinum wire cathode to ensure a faithful visualization of undistorted flow. With light source to illuminate hydrogen bubbles in the working section. Light source to be of several high intensity lEDs. • One variable speed pump controlling the unique fluid-drive unit. With a set of polished acrylic flow guides. Pulse generator range: 3 to 2500 mS (on/off periods). Cathodes: 35, 50 and 75 mm lengths. Flow tank capacity: 20 litres. approx. Working section: length: 430 mm., width: 290 mm., depth: 36 mm. approx. Current generator: 0 to 100 mA. • Polished acrylic flow guides & models with Flat plate, Curved plate, Two blocks with rediused ends, 4 cylinders of 6, 12, 19 & 25 mm diameter, one pair of 330 mm long straight guides, two spacer blocks for straight guides, Flat plate with rediused ends, Aerofoil section, Rectangular block of 70 x 40 x 25 mm, Container for guides and models, Electronic Console, incorporating display for operating parameters, control for pump, source lamp and hydrogen bubbles generator. This console to be provided with necessary electrical services for the unit. Cables and accessories, for normal operation.
9.	**Gravimetric Hydraulics Bench**	• To comprise a floor standing molded fiberglass water supply tank to be compatible with other experimental units, with integral pump and gravimetric flow measurement system • To include a moulded fibreglass work surface for experiments with an anit-spill lip • To include a 40 Litre capacity weigh tank • To incolde a counter balanced lever and weight system with 3:1 ratio • To be supplied with 6x 2KG wights • Sump tank capacity to be 160 litres • Pump capacity to be 0-60 litres/minute at 1.5m head • Motor power to be 200 watts

S.N.	ITEM	TECHNICAL SPECIFICATIONS
		• Flow measurement to be accurate within 2% • To include an adjustable depth gauge • Nett dimensions to be 1200 x 760 x 1100mm
10.	**Volumetric Hydraulics Bench**	• To comprise a floor standing moulded fibreglass water supply tank , to be compatible with other experimental units, with integral pump, volumetric measuring channel and flow channel • To include a 35 Litre inner tank for volumetric flow measurement • To include an individually calibrated level indicator for simple conversion to mass flow rate • To include a moulded fibreglass work surface for experiments with an anit-spill lip, and moulded fibreglass channel for flow measurement and notch experiments • Sump tank capacity to be 160 litres • Volumetric tank capacity to be 35 litres • Pump capacity to be 0-60 litres/minute at 1.5m head • Motor power to be 200 watts • To include an adjustable depth gauge • Nett dimensions to be 1200 x 760 x 1100mm • Operating temperature range to be +5^{O}C to +40^{O}C • Operating relative humidity range to be 80% at temperatures < 31^{O}C decreasing linearly to 50% at 40^{O}C

GENERAL TERMS AND CONDITIONS

1. Detailed information about the Equipments/Instruments and their specifications are available in tender document, which can be downloaded from the University website www.gbu.ac.in.
2. Two bids system of tender will be adopted.
   (i) The bid containing technical specifications and EMD
   (ii) Bid containing financial offer

   Technical and financial bids should be submitted in separate covers. The envelopes should be marked as technical bid and financial bid with reference numbers. These two envelops shall be sealed in a common cover and addressed to **The Registrar, Gautam Buddha University, Greater Noida, Gautam Budh Nagar -201310 (U.P.**) superscribing "**Tender against Notification Advt. GBU/S&P/02/2011, Name of supply: Laboratory Equipments/Instruments for the Fluid Mechanics Lab. in School of Engineering"** so as to reach us on or before last date of bid submission.

3. The Technical Bid and Financial Bid should be duly filled-up.
4. These bids will be opened in two stages. The bid containing technical specifications and EMD will be opened at first stage and if same is found according to required specifications, the bid containing financial offer shall be opened in second stage.
5. The "**Technical Bid"** shall contain all documents in support of quoted Equipments/Instruments, their specifications, commercial terms & conditions and eligibility criteria along with the page number for cited specifications in the company brochure for the particular item.
6. The **"Financial Bid"** shall contain price schedule only. The rates and units shall not be overwritten in the price schedule. The price shall be both in words and figures.

7. **Eligibility Criteria**: All the participating suppliers/firms or principal manufacturer- should meet the following qualifying criteria. The firm should be a registered supplier for such supplies. Following documents are required to be submitted with Technical Bid, to qualify eligibility criteria:
   (a) Sales Tax/VAT registration certificate.
   (b) PAN and TIN number should be mentioned.
   (c) The firm should have experience of supplying & installation for similar Equipments/Instruments to institute of National repute such as IIT, AIIMS, CSIR labs etc. The company should also furnish a list of clients of last 3 years.
   (d) Certified copy of balance sheet with trading, profit & loss account for the last three financial years should be submitted.
   (e) Name of branch offices & service centres after sales arrangements.
   (f) Earnest Money Deposit (EMD) **as 2% of the offered cost** is required to be submitted in the form of DD/Banker's Cheque only drawn in favour of "Finance Officer, Gautam Buddha University" payable at "Greater Noida" along with the Technical Bid. If supply is not made within the prescribed period EMD would be forfeited.
   (g) Authorized signatory should sign on all pages. Bids without authorized signature will be rejected.
   (h) ***Minimum turnover required to procure the equipments/instruments :*** *Rupees One Crore for Annexure – 'A' and Rupees Two Crore for Annexure – 'B'.*
   (i) The bidder must be either sole Manufacturer of the Equipments/Instruments or the authorized agent/representative of the OEM. In the case of agent/representative, certified copy of the agency/authorization issued by the OEM should be enclosed with the tender.

8. Offer should be sent in a sealed envelope, submitted either in person or by post on which name and address of the supplier/firm shall be written. Tenders received through E-mails or FAX will not be considered.
9. The technical bids will be opened on scheduled date and time in the presence of the vendors present possessing authorization letter from the respective companies/firms. Suppliers intending to attend the tender opening should intimate in advance.
10. The rate quoted should be F.O.R. Gautam Buddha University (Gautam Budh Nagar, Greater Noida, UP) in rupees inclusive of all charges e.g. packing, forwarding local taxes, railway freight, transit insurance, for outside firms and free delivery at University stores in the case of local firms. The total price should include all accessories required for final installation of the Equipments/Instruments.
11. The Equipments/Instruments should have USEPA/International/National validation certificates, wherever applicable.
12. The cost of the tender is Rs.1000/- (Rupees One Thousand) inclusive of taxes (Non-refundable) and it shall be paid separately in the form of DD/Banker's Cheque only drawn in favour of "Finance Officer, Gautam Buddha University" payable at "Greater Noida" and should be attached with technical bid envelope.
13. The EMD of the successful bidder will be refunded after two months of the completion of the supply and installation of the Equipments/Instruments to the satisfaction of the Gautam Buddha University. The EMD of the unsuccessful bidders will be returned to the concerned immediately after finalization of the tenders. No interest will be paid on EMD in any case.
14. The required delivery period must be mentioned against each item. Tenders should preferably be given only for those equipments/items/articles, which are available ex-stock. Rates of imported goods should be quoted excluding custom duty, as this University is exempted from payment of custom duty (by letter of Department of Scientific and Industrial Research, Ministry of Science & Technology, GOI).
15. Detailed specifications with the mention of make and model/Version of each item should be clearly given supported by the illustrated pamphlets wherever possible. Quotations without specified make and Model/Version and other particulars may be rejected. The payment will be made after the goods have been received, opened, checked, installed and found to be working satisfactorily as per the specifications and requirements. The accessories included in the Equipments/Instruments should also be clearly mentioned.
16. Losses or damage in transit will be borne by the Supplier. The supplier may, if he so desires, get the goods insured and include such charges in the tendered rate.
17. Offered prices should be valid at least for two months from the last date of receipt of tenders.
18. All legal proceedings, if necessity arises to the University may be any of the parties (University or Contractor/Supplier) shall have to be lodged in the courts situated at Gautam Buddha Nagar and not elsewhere.
19. (a) The Equipments/Instruments delivery time should be preferably within 10-12 weeks after the date of issuance of the purchase order. If the delivery time is quoted more than 10-12 weeks, GBU reserves all rights to permit the bidder to compete.

    (b) The Penalty Clause is as under:-

    Should the bidder fail to deliver the goods within stipulated period**,** the Competent Authority may, at his discretion, allow an extension in time subject to recovery from the bidder as agreed liquidated damages, and not by way of penalty, a sum equal to the percentage of the value of tender amount which the bidder has failed to supply for period of delay as stated below:-

i.Delay up to one week	1%
ii.Delay exceeding one week but not	2%

exceeding two weeks	
iii. Delay exceeding two weeks but not exceeding one month	5%
iv. Delay exceeding one month	5% for each month and part there of subject to maximum 10%

(c) In case of failure to supply the goods within stipulated delivery period and in accordance with the specifications given in the quotations, the University shall be free to cancel the order.

20. Supply of the placed order in part will not be accepted.
21. The University's term for payment: 90% against delivery of items in good condition, installation and putting those in satisfactory working conditions; balanced 10% payment shall be released after 60 days of satisfactory working of the items. For balance 10% payment, the firm has to raise bill/letter for balance payment. No advance payment shall be released.
22. The AMC cost, wherever applicable, after warranty period shall be made in equal installments at the end of each quarter subject to satisfactory service rendered.
23. The price quoted should be in Indian Rupees.
24. No revision of price bid will be allowed once the price bids are opened.
25. No increase in price will be allowed after our purchase order(s) are placed.
26. Warranty certificate against all the Equipments/Instruments developed defects covering warranty period, which commences from the date of installation shall be given at the time of supply of the Equipments/Instruments.
27. Inspection certificates of the equipments/instruments inspected by the qualified engineer of the manufacturer and packed in accordance with the terms and conditions of this order must be enclosed.
28. During the warranty period whenever the firm is called upon to attend to the rectification of the defects/faults in the consignments, the firm shall attend to the repair work within a period of a week. They should render timely back up service whenever called upon. A certificate to the effect should be attached to the tender.
29. A certificate to the effect that Equipments/Instruments supplied is fully operational and no additional accessory or space is required to fully functioning the Equipments/Instruments should be issued along with the delivery challans/invoice. GBU reserves the right to refuse payment in the event of not furnishing this certificate at the time of supply.
30. Complete user, technical and service manuals/installation drawings/documentation and spare parts catalogue are to be provided along with the supply of the item.
31. Failure to comply with all the terms and conditions mentioned herein would result in the tender being summarily rejected.
32. Vendors are informed that once the firms are shortlisted based on the eligibility criteria and technical specifications, only then the financial bids of the firms meeting eligibility criteria, technical specifications / requirements would be opened.
33. Conditional tenders will not be accepted.
34. Any cutting and overwriting in the financial bid will not be accepted.
35. GBU reserves the right to change the order quantity or split the orders among multiple vendors without assigning any reason (s) whatsoever.
36. GBU reserves the right to reject any or all the tenders without assigning any reasons whatsoever.

SPECIAL TERMS AND CONDITIONS

1. Warranty period of equipments should be of two years.
2. Quote for three year extensive Annual Maintenance Contract (AMC) should be submitted separately in financial bid.
3. Price quoted shall include all necessary component parts, accessories and software required to run the equipments for successful intended experiments.
4. To verify the technical specifications and capabilities while evaluating technical bids, the firm may be asked to demonstrate the equipment in the University. If demonstration of the equipments in the University is not possible the firm shall arrange a visit of university officials to the nearby location for the same
5. Successful bidders shall arrange training programmes for the faculty and staff for the period decided by the University.
6. All equipments shall be compatible for Indian environmental conditions.

Registrar
Gautam Buddha University

ACCEPTANCE

We accept the above terms and conditions and shall comply with them strictly.

SIGNATURE OF THE AUTHORISED SIGNATORY : ……

NAME OF THE SUPPLIER : ……

ADDRESS : ……

: ……

: ……

Annexure : 'A'

FINANCIAL BID
Name of Laboratory : FLUID MECHANICS LAB.
Name of the School : School of Engineering

S. No.	Equipment	Qty.	Unit Price (Rs. In figure)	Unit Price (Rs. in words)	Total Cost (Rs.)
1	**Unit for study and comparison of pressure measurement devices**	**1**			
2	**Unit for Flow Measurement & Bernouli's equation.**	**1**			
3	**Unit for Discharge over a Notch**	**1**			
4	**Experimental setup for head loss in Pipes due to sudden contraction & expansion**	**1**			
5	**Unit for the visualization and study of Laminar and Turbulent flow and Reynolds' Number**	**1**			

Extensive Annual Maintenance Contract cost (three years) should be mentioned on a sheet for each item separately.

Total cost of the offer is Rs._____ in words (Rupees _____

_____. I abide by all the terms & conditions of the tender.

DECLARATION

1. The information given in the financial bid by the undersigned is correct.

SIGNATURE OF THE AUTHORISED SIGNATORY: _____

NAME OF THE SUPPLIER : _____

ADDRESS : _____

_____

Annexure : 'B'

FINANCIAL BID
Name of Laboratory : FLUID MECHANICS LABORATORY
Name of the School : School of Engineering

S. No.	Equipment	Qty.	Unit Price (Rs. In figure)	Unit Price (Rs. in words)	Total Cost (Rs.)
1	Comprehensive system for studying a wide range of Hydrostatics and Properties of Fluids experiments	1			
2	Falling Sphere Viscometer and Drag Coefficient measuring unit.	1			
3	Unit for Jet Trajectory and Flow Through an Orifice	1			
4	Unit for the study for flow measurement using and calibration of a Pitot Tube, Orifice Meter, Venturi Meter and Nozzle, and demonstration of the boundary layer effect	1			
5	Venturi meter Unit	1			
6	A floor standing unit for studying cavitation	1			
7	Real Time Computer Controlled Experimental setup of Pipe flow Measurement for coefficient of friction losses due to friction in pipe lines, due to different diameters, bend, sudden contraction & expansion	1			
8	Hydrogen Bubble based Flow Visualization setup for boundary layer theory.	1			
9	Gravimetric Hydraulics Bench	4			

10	**Volumetric Hydraulics Bench**	**4**			

Extensive Annual Maintenance Contract cost (three years) should be mentioned on a sheet for each item separately.

Total cost of the offer is Rs._____ in words (Rupees _____

_____. I abide by all the terms & conditions of the tender.

DECLARATION

1. The information given in the financial bid by the undersigned is correct.

SIGNATURE OF THE AUTHORISED SIGNATORY: _____

NAME OF THE SUPPLIER : _____

ADDRESS : _____

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