

**Tender
(Proposal/Bid Document)
for
Structural Analysis –I Lab and Fluid Mechanics –I Lab
Department of Civil Engineering
Under
School of Engineering and Technology
in
Central Univesity of Harayana, Jant-Pali, Mahendergarh**



**TENDER CONDITIONS FOR SUBMISSION
OF TECHNICAL BID & PRICE BID**

Central University of Haryana

Jant-Pali, Mahendergarh, Haryana-123031

No: CUH/2017-18/SOET/95

SHORT TERM TENDER NOTICE

Central University of Haryana intends to procure apparatus as per the specifications given in this tender document for establishing Structural Analysis-I and Fluid Mechanics-I Laboratory for Department of Civil Engineering. Hence, Central University of Haryana (CUH) invites techno-financial proposals for these items from reputed firms having expertise and experience in the relevant field.

The tender should be in two bid system (Technical & Financial bids). The Financial bid shall be opened only for approved/responsive technical bids.

Complete tender details are available on our website: www.cuh.ac.in or may be obtained in person from the undersigned.

Last Date for submission of Tender : 31/01/2018 2:00 PM
Date of opening Technical Bid : 31/01/2018 3:00 PM

Place of Opening the Tender

Room No: 20 (Seminar Hall) in Teaching Block-III, CUH, Jant Pali- Mahendergarh.

Registrar
CUH

1. Submission, Receipt, And Opening Of Proposals

The original Technical and Financial Proposals/bids shall be prepared and submitted in separate sealed envelopes and both the envelopes should be kept in another envelope along with bid processing fee of Rs. 1000/-.

The bidder shall sign and submit the proposal/bid.

The envelope should be superscribed "*Civil Engineering labs of Department of Civil Engineering under School of Engineering and Technology*". The proposal/bid may be sent by post so as to reach the office of the Registrar, Central University of Haryana, Mahendergarh -123031 (Haryana) on or before the due date and time (31-01-2018 upto 2:00 pm) submitted on or before the due date for bid submission specified in the tender notification.

2. **Bid Processing Fee:** Each bidder shall pay the bid processing fee for Rs. 1000/- in the form of *DD drawn in favour of Registrar, Central University of Haryana, Payable at MAHENDERGARH.*
3. **Earnest Money Deposit (EMD):** Each bidder shall pay EMD@ 2% of the quoting value in the form of *Demand Draft drawn in favour of "Registrar Central University of Haryana, payable at Mahendergarh.*
4. **Technical Bid format:** The bidder shall confirm that the product quoted (by the bidder) shall be in conformance with the conditions/criteria specified herein.
5. **Financial Bid Format:** Bidders shall quote items with inclusive prices (i.e. price inclusive of taxes and all other expenses) for delivery and installation.
6. Successful Bidder has to provide Performance Bank Guarantee to the tune of 8% of the order value for the warranty period in the form of *Demand Draft/FDR/Banker's cheque drawn in favour of "Registrar Central University of Haryana, payable at Mahendergarh.* The paying document of the performance Bank Guarantee should be valid upto the end of warranty/Guarantee period.

Technical Eligibility Criteria

1. The Manufacturer/Bidder should not be associated or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the purchaser to provide consulting services for the preparation of the design, specification, and other documents to be used for the procurement of the goods to be required under this invitation of tender.
2. Manufacturer/Bidder shall not be under any declaration of ineligibility for corrupt and fraudulent practices issued by any State Government/Government of India (GOI)/Union territory. The Manufacturer/Bidder should not be a defaulter of any Financial institute or Bank and their assets should have never been put on auction for recovery of debts .

3. The Manufacturer /Bidder should be in the business in India for more than 3 years as on 26-10-2017. This should be supported by the certificate of registration issued under the companies act by a competent authority.
4. The Manufacturer/Bidder who deal with machines/equipments for the laboratories should have executed/implemented work/purchase order for any Govt. Institution/Central and State Universities/IIT/NIT/PSU/Research Organisation and should furnish the details as per performa given in Annexure-1 It should be having at least two orders minimum of Rs. 15 Lakhs or a single order of Rs. 25 Lakhs . The bidder should furnish the information supported by Purchase order or Work done certificates from the concerned department(s). For remaining items no such limit of turn-over is required.
5. The Manufacturer /Bidder should have the turnover of Rs. 40 lakhs in any financial year for the last 3 years for the machines/equipments for the laboratories taken together or for individual. For remaining items there requires no limit of turn-over and should furnish the details as per performa given in Annexure-2. This should be supported by audited balance sheet of the company.
6. The Manufacturer/Bidder should submit catalogue with complete technical details with Make and Model for technical evaluation purpose. Bids without Catalogue or with incomplete information are liable to be rejected.
7. There should be no complaint against the Manufacturer/Bidder for poor performance of the equipments supplied.
8. The Manufacturer / Bidder should submit copy of ITR of last year.
9. Installation, Demonstration and Testing of equipment is to be done by the supply firm in the presence of subject expert of the concerned lab i.e. Fluid Mechanics-I and Structural Analysis-I
10. The Manufacturer should have certification as per the National/International Standards
11. The Bidder should have Authorization certificate from Manufacturer for this Tender with tender No. mentioned in it for Software License and other equipments, if required.
12. The Manufacturer / Bidder should be ready for demonstration of the product quoted on short notice as per the tendered specifications.
13. The Manufacturer / Bidder may quote any or all the products/items as per the Tender.
14. University - is the final authority to judge the tender and has every power - to accept or reject the same without assigning any reasons.
15. Technically qualified bidders should demonstrate the machine/item functionality during the installation and training.
16. The bidder should undertake to provide after sale-service whenever needed by the purchaser.
17. Technical bid should include the details as per performa given in Annexure-3.
18. Evaluation of tender will be done as per details given in Annexure-4.
19. Terms and conditions are mentioned in Annexure-5.
20. Specifications of machines/items are mentioned in Annexure-6.
21. Financial bid should include the details as as per performa given in Annexure-7.

Annexure-1

PROFORMA FOR PAST PERFORMANCE

TenderNo.....Date of Opening..... Time.....hours

Orders placed by (Full address of Purchaser)	Order No. and Date	Description and Quantity of ordered items	Value of Order	Date of completion of delivery as per contract/actual	Remarks indicating reasons for late delivery if any.
1	2	3	4	5	6

Name of the Firm:

Signature and Seal of the Tenderer:

Annexure - 2

Format for Turnover information

Total turnover of the bidder during the preceding 3 years:

Financial year	Turnover (Rs. in Lakhs)
2014-15	
2015-16	
2016-17	

Annexure-3

The bidder should fill in the below format to be submitted in Technical Bid

S. No	Brief Description of Equipments	Quantity to be Supplied	Delivery schedule

Annexure-4

Evaluation of the Tenders

- a) Central University, Mahendergarh shall first evaluate the technical bids. The commercial bids of only those bidders who happened to be responsive/qualified in the technical bids, will be opened.
- b) Decision of the University in the evaluation of the Technical bids shall be final.

Financial bid evaluation: The financial quotes submitted by technically responsive/qualified bidders will be opened. Then Contract will be awarded to the successful Bidder whose Bid has been determined to be substantially responsive and has been determined as the Best Value Bid.

Bid submission timelines: The timelines for bid-submission etc., will be as it is given in the Tender Schedule published.

University reserves the right to cancel any or all tenders, without assigning any reasons.

Annexure-5

Terms & Conditions

PAYMENT SCHEDULE

Payment : 100% payment will be released on delivery and satisfactory installation of goods.

DELIVERY SCHEDULE:

The equipments/goods are required to be supplied within 100 days (or mutually agreed time-period) of receipt of the Purchase Order. In case successful tenderer fails to complete the order in part or whole in the stipulated period of 100 days (or mutually agreed time-period) of a penalty @ 1% of the order value will be imposed per day subject to maximum penalty of 10% the order value. In case the delay is more than four weeks (after the expiry of the stipulated period) the purchase order may be cancelled.

VALIDITY OF QUOTATION:

The quotation should be valid for 12 months (365 days) after the date of the opening of the bids.

GUARANTEE/WARRANTY

All the equipments should have an onsite warranty for three years. The warranty shall take effect from the date of successful installation of machine/item and handing over of the system to the user Dept. to its satisfaction.

The maintenance services, including spares shall be free of cost during the warranty/ guarantee period.

Annexure-6

SPECIFICATIONS

Detailed specifications of the Machines/Equipments Required

Fluid Mechanics-I LAB For III Sem

METACENTRIC HEIGHT

UTILITIES REQUIRED

- Hydraulic Bench
- Water Supply & Drain
- Electricity 1 kW, 220V AC, Single Phase
- Floor Area 1.5 m x 1.5 m

TECHNICAL DATA

Product	Metacentric Height
Max. angle of heel	$\pm 13^\circ$
Corresponding linear dimension	$\pm 90\text{mm}$
Pontoon	Size 350mm x 200mm x 150 mm (approx.) with Horizontal Guide Bar for aiding weight MOC Acrylic
Tank	MOC PVC, Size 450mm x 300mm x 200 mm (approx.)

BERNOULLI'S THEOREM APPARATUS

UTILITIES REQUIRED:

- **Electric supply** 0.5 kW, 220V AC, Single Phase
- **Water supply** Tap water connection $\frac{1}{2}$ " BSP
- Distilled water @ 60 liters
- **Floor Area with Drain facility**

TECHNICAL DETAILS:

Product	BERNOULLI'S THEOREM APPARATUS
Test Section	Material Acrylic, Size 1" dia
Inlet Tank	Capacity 30 Ltrs. MOC SS
Supply Tank	Capacity 50 Ltrs. MOC SS
Measuring Tank	Capacity 30 Ltrs. MOC SS fitted with Piezometer Tube & scale
Piezometer Tubes	Material P.U. Tubes (9 Nos.)
Pump	FHP capacity make Crompton Greaves/Kirloskar

Piping	MOC GI and PVC
Stop Watch	Electronic
Overall Dimensions	(L x B x H) 120cm x 42cm x 170 cm

ORIFICEMETER APPARATUS

UTILITIES REQUIRED:

- **Electric supply** 0.5 kW, 220V AC, Single Phase
- **Water supply** Tap water connection
½" BSP Distilled water @ 90 liters
- **Floor Area with Drain facility**

TECHNICAL DETAILS:

Product	Orificemeter Apparatus
Orificemeter	Material Clear Acrylic/ Brass/SS Plate compatible to 1" Dia. Pipe.
Water Circulation	FHP capacity make Crompton Greaves / Kirloskar
Flow Measurement	Capacity 30 Ltrs. MOC SS fitted with Piezometer Tube & scale
Sump Tank	Capacity 50 Ltrs. MOC SS
Piping	MOC GI and PVC
Stop Watch	Electronic
Control Panel	On/Off Switch, Mains Indicator, etc
Overall Dimensions	(L x B x H) 120cm x 42cm x 120 cm

VENTURIMETER APPARATUS

UTILITIES REQUIRED:

- **Electric supply** 0.5 kW, 220V AC, Single Phase
- **Water supply** Tap water connection
½" BSP Distilled water @ 60 liters
- **Floor Area with Drain facility**

TECHNICAL DETAILS:

Product	Venturimeter Apparatus
Venturimeter	Material Clear Acrylic compatible to 1" Dia. Pipe
Water Circulation	FHP capacity make Crompton Greaves/Kirloskar
Flow Measurement	Capacity 30 Ltrs. MOC SS fitted with Piezometer Tube & scale
Sump Tank	Capacity 50 Ltrs. MOC SS
Piping	MOC GI and PVC
Stop Watch	Electronic
Control Panel	On/Off Switch, Mains Indicator, etc
Overall Dimension	(L x B x H) 120cm x 42cm x 120 cm

ORIFICE & MOUTHPIECE APPARATUS

UTILITIES REQUIRED:

- **Electric supply** 0.5 kW, 220V AC, Single Phase
- **Water supply** Tap water connection ½" BSP
Distilled water @ 60 liters
- **Floor Area with Drain facility**

TECHNICAL DETAILS:

Product	Orifice & Mouthpiece Apparatus
Orifice	Set of 2, Material Acrylic (Diameter 10mm and 15 mm)
Set of Mouthpieces	Set of 3, Material Acrylic (Diameter 10mm with L/D = 1, 2.5 & 4)
Constant level tank	Capacity 25 Liters. MOC SS
Supply Tank	Capacity 50 Liters. MOC SS
Measuring tank	Capacity 30 Ltrs. MOC SS fitted with Piezometer Tube & scale
Hook/Pointer Gauge	To measure X-Y co-ordinates of Jet
Pump	FHP capacity make Crompton Greaves / Kirloskar
Piping	MOC GI and PVC
Stop Watch	Electronic
Overall Dimension	(L x B x H) 120cm x42cm x180 cm

FLOW OVER NOTCH APPARATUS

UTILITIES REQUIRED:

- **Electric supply** 0.5 kW, 220V AC, Single Phase
- **Water supply** Tap water connection ½" BSP
Distilled water @ 60 liters (optional)
- **Floor Area with Drain facility**

TECHNICAL DETAILS:

Product	NOTCH APPARATUS
Test Notches	Set of 3 Notches: Rectangular Notch, 45° V Notch & 60° V Notch
Channel Section	Size 600mmx 250mm x 180 mm MOC SS
Supply Tank	Capacity 50. MOC SS
Measuring tank	Capacity 30 Ltrs. MOC SS fitted with Piezometer Tube & scale
Vernier gauge	To measure head of water in channel
Pump	FHP capacity make Crompton Greaves / Kirloskar
Piping	MOC GI and PVC
Stop Watch	Electronic
Overall Dimensions	(L x B x H) 120cm x 42cm x 160 cm

WIND TUNNEL

UTILITIES REQUIRED:

- Electric Supply: 220/240V/1ph/50Hz
- Floor Area 10m x 3.5 m

TECHNICAL DETAILS:

Product	SUB SONIC WIND TUNNEL
Models	Aerofoil, pressure-velocity distribution across models, cylinder,
Type	Open Type Wind Tunnel
Test Section	300mmx 300mm x 450mm
Blower axial fan type	Compatible Capacity.
Motor	3 HP, 2800 RPM
Speed Controller	For Variable Speed from 10%to 100% speed.
Air Velocity	2 to 30 m/s approximate (depends on the test section size)
Multiple tube Manometer	15 PVC Tubes 0-45° inclination with vertical axis.
U tube manometer	Length 1 m
Pitot Static Tube	300 mm, Tube Diameter 3/8"
Anemometer	Velocity Measuring Range 0-30 m/s

MULTI- PURPOSE TEACHING [TILTING] FLUME

TECHNICAL SPECIFICATIONS

Product	Multi- purpose teaching flume
Length	5.0 m
Channel dimensions	Width: 200mm Height: 400mm Channel slope: adjustable between $\pm 2\%$ or Confirm
Model and gauges	<ul style="list-style-type: none">• Venturi flume• sharp and broad crested weirs• crump weir• adjustable undershot weir• 2 vernier level gauges• Pitot static tube
Electric Supply	220/240V/1ph/50 Hz @10 A
Pump	2 HP
Sump Tank MOC (SS)	450 Ltr Approx
Measuring Tank MOC (SS)	100 Ltr

STRUCTURAL ANALYSIS-I LAB For III Sem

Universal Testing Machine Computerized, Capacity, 1000 KN, 6 pillar type with Hydraulic Jaws.

Type

6 pillar/Column type Load frame for 1000kN

Capacity

1000kN **Sample Gripping system**

Hydraulic **Resolution**

0.01kN **Max Clearance for Tensile Test**

50-650mm **Max Clearance for Compression Test**

0-600mm **Clearance between Columns**

650mm **Ram Stroke** 250mm

Straining/piston speed at no load

0-50mm/min

Control

Manual Load Control

Power supply

3-

Phase 440 volt 50 Hz AC Supply

Universal Testing machines should be supplied along with the

Machine: For Tension Test

Clamping jaws for round specimens 8-16mm, 20-40mm 40-60mm - 1 set each

Clamping Jaws for Flat Specimen thickness 0-40mm - 1 set

For Compression Test

Pair of compression plates - 220mm - 1 No

Spherical seating facility for cube test

NABL Calibration certificate in Compression mode

For Transverse Test:

Table with adjustable roller

Width of roller - 140mm

Diameter of roller - 50mm

Maximum clearance between support - 600mm

Radius of Punch Tops - 16mm, 22mm - 1 No each

Data analysis and reporting software for UTM - 1 No

Compatible Computer and Laserjet black & white printer - 1 No

Attachments as per below details

Electroinc extensometer strain gauge type with 2.5mm extension and gauge length 25mm & 50mm. **01 No**

BendRebendTestAttachment-1No

CLERK MAXWELL'S RECIPROCAL THEOREM

APPARATUS

Apparatus consists of a mild steel beam 100 cm long and 1.25 cm x 4 mm in cross-section with graduations at every 10 cm along the length. It should be supported on two knife edge supports 70 cm apart with a 30 cm overhang on one side. Reciprocal theorem can be verified by direct measurements of the deflections at various points with the help of a dial gauge due to a load placed at the reciprocal points. A dial gauge with 25 mm travel (with a magnetic base) should be supplied with the apparatus. Apparatus to be supplied should be complete with a supporting stand and a set of weights.

BEHAVIOUR OF COLUMN AND STRUTS APPARATUS

Behaviour of Column and Struts Apparatus

Apparatus consists of four spring steel columns which are put along a vertical wooden board. These four columns have different end conditions as below:

1. Both ends pinned
2. Both ends fixed
3. One end pinned and other fixed
4. One end fixed and other end free

Apparatus to be supplied should be complete with a supporting stand and a set of weights.

BRINELL CUM ROCKWELL HARDNESS NUMBER TESTER

There are 4 quick load change options 60 kgf, 100 kgf, 150 kgf for Rockwell Test (HRA, HRB, HRC) and 187.5 kgf (BHN) for Brinell Test in this machine.

Direct reading of Rockwell scales HR-A, B, C.

Samples up to 230 mm high & 155 mm throat depth can be tested.

Technical Specification:

Rockwell Scales - A, B, C

Brinell Hardness

Hardness Resolution - 1.0 of a Rockwell unit

Test loads:

Rockwell - 10 kgf Pre Load / 60 kgf, 100 kgf, 150 kgf Main load.

Brinell - 10 kgf Pre Load / 187.5 kgf Main load.

Display - Analogue.

Accuracy - Conforms to IS 1586 - 2000 (2006)

Specimen accommodations:

Vertical space - 230 mm

Horizontal space (from central line) - 155 mm

Machine Specifications:

Machine Dimensions -

655mm(H)x170 mm(W)x475 mm(D)

Machine Weight- 85kg (Approximately)

Power Supply- 220V, 1 ph, 50Hz (For Brinell Microscope only)

TORSION TESTING MACHINE**Technical Specifications**

Maximum capacity 100 Nm

Least Count 0.01 Nm

Maximum clearance between grips 500 mm

Grips for square specimens 5-15 mm

Grips for flat specimens 5-12mmx40mm

Powder Coated

Electrically operated, branded motor

Annexure 7:

Financial Bid

S.No.	DESCRIPTION	Rate	Quantity	Amount
1				

Grand Total

Total in words:

Terms and conditions if any:

Annual Maintenance Contract.

The Bidder should quote the charges for Annual Maintenance Contract (AMC) for 03 (Three Years). The charges to be quoted per annum.

S. No.	AMC Charges (after the warranty period)	Rate
1	First Year	
2	Second Year	
3	Third Year	

Note: The Annual Maintenance Contract (AMC) will be awarded along with Purchase Order but will come into force after the expiry of Warranty period. Payment will be made annually and will be paid after the end of each year.