



**Engineering College, Ajmer**  
(An Autonomous Institute of Govt. of Rajasthan)  
**N.H.8 , Barliya Circle, Near Nareli Temple, Ajmer**

**INVITATION LETTER**

**Package Code: TEQIP-III/2019/RJ/GECA/113**

**Current Date: 12.02.2020**

**Package Name: GECA/TEQIP-III /2018-19/Civil-Fluid**

**Method: Shopping Goods**

**Mechanics and Hydraulics & Hydraulic Machines Lab**

To,

M/S \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Sub: Invitation Letter For GECA/TEQIP-III /2018-19/Civil-Fluid Mechanics and Hydraulics & Hydraulic Machines Lab**

Dear Sir,

- You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

S. N.	Item Name	Qty.	Place of Delivery	Installation Requirement
1	Equipment For Determine The Viscosity of A Given Fluid (Falling Ball Viscometer)	1	Engg. College, Ajmer N.H. 8, Barliy a Circle, Near Nareli Temple, Ajmer	Onsite installation and testing & commissioni ng required.
2	Various Pressure Measuring Devices	1		
3	Equipment For Determination Of Minor Losses	1		
4	Equipment For Determination $C_d$ for Broad Crested Weir	1		
5	Verification Of The Momentum Equation Apparatus	1		
6	Tilting Bed Open Channel Flow (To determine Manning's & Chezy's coefficient of roughness for the bed of a given channel. To study and plot characteristics curve of hydraulic jump. To study velocity distribution in open channel flow.)	1		
7	Centrifugal Pump Test Rig with variable speed	1		
8	Francis Turbine Test Rig	1		
9	0.5 inch nozzles valves standard make	2		
10	1 inch nozzles valves standard make	2		
11	0.5HP Motor pump (Kirloskar /Crompton/ Texamo / Havells)	1		
12	0.5 Inch gardening PVC pipes (100 feet length)	1		
13	1 Inch gardening PVC pipes (100 feet length)	1		

- Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme [TEQIP]-Phase**

**III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.

**3. Quotation**

3.1 The contract shall be for the full quantity as described above.

3.2 Corrections, if any, shall be made by crossing out, initialling, dating and rewriting.

3.3 All duties and other levies payable by the supplier under the contract shall be included in the unit Price.

3.4 Applicable taxes shall be quoted separately for all items.

3.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

3.6 The Prices should be quoted in Indian Rupees only.

**4.** Each bidder shall submit only one quotation.

**5.** Quotation shall remain valid for a period not less than **90** days after the last date of quotation submission

**6.** Evaluation of Quotations: The Purchaser will evaluate and compare the quotations determined to be Substantially responsive i.e. which

6.1 are properly signed; and

6.2 Confirm to the terms and conditions, and specifications.

6.3. Incomplete quotation in any regards will not be considered for the evaluation. Vendor is required to submit complete quotation with all relevant documents.

**7.** The Quotations would be evaluated for all items together.

**8.** The prices submitted by vendor in quotation will be final and no negotiation for the price and terms and conditions will be entertained.

**9.** Award of contract The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

9.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of Contract.

9.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be Incorporated in the purchase order.

**10.** Payment shall be made in Indian Rupees as follows:

**Satisfactory Delivery & Installation - 90% of total cost**

**Satisfactory Acceptance - 10% of total cost**

11. **Delivery period: 45 days from the date of Purchase Order.**
12. Liquidated Damages will be charged at the rate of 0.66% per day, L.D. Max. 10% on pre tax billing amount if delivery period exceeds 45 days. Purchase Order shall be understood cancelled automatically without any prior notification if delivery period exceeds 60 days.
- 13 All supplied items are under warranty of **36** months from the date of successful acceptance of items and AMC/Others. The Firm must have the capability for uninterrupted supply of spares, accessories for a period of 3 years (36 months) from the date of acceptance to avoid any operational problem due to obsolesce.
14. Vendor/bidder must submit two bids concurrently, i.e technical bid and financial bid, with proper marking on envelopes.
- 15 You are requested to provide your offer latest by **10:00** hours on **28-Feb.-2020**, the quotation received within stipulated date and time shall be opened as follows :
  - i. Technical Bid at 10:00 AM on **28-Feb.-2020**.
  - ii. Financial Bid at 03:00 PM **28-Feb.-2020**.
- 16 Technical bid contains followings:
  - i The technical bids should contain the details specifications of items (As per Annexure-1). Any deviation should be highlights in the bid. Compliance sheet of technical specification of evaluation (in the order on given in Annexure-1) should be providing. Compliance Sheet of technical specifications is must.
  - ii Original Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
  - iii Only authorized dealer/ agency of Original Equipment Manufacturer (OEM) or OEM should apply against this invitation for bid. In the case of the bidder, offering to supply goods under the bid, which the bidder does not manufacture or otherwise produce, the bidder has to provide Manufacturer's Authorization Certificate for each item (excluding services) strictly as per format at Annexure -2. Bids submitted without authorization certificate for each item (excluding services) as per Annexure-2 will be summarily rejected.
  - iv The OEM firm should have the valid ISO 9001:2015 and/or ISO14001:2015 certification as applicable (copies of ISO certificate(s) to be submitted.)
  - v The bidder shall quote only one specific make/model from only specific OEM for each of the goods. Bid will be rejected if bidder provides more than one make/model for an item/good
  - vi Vendor will have to submit an Affidavit on non-judicial stamp paper of Rupees 500.00 mentioning following:
    - a. The average turnover of the bidder quoting for the bid have Rs. 200 Lakhs during the last three financial years (2016-2017, 2017-2018 & 2018-2019).

- b. The bidder has not been blacklisted **last five years** by Central Govt./State Govt./PSUs/Autonomous bodies.
- c. Commercial warranty/guarantee of 36 months on all supplied items, and agrees with the terms & conditions mentioned in the invitation letter.

vii OEM firm or bidder must have executed at least :

\*One single order of similar items having value of Rs. 18.40 Lakhs

(OR)

\*Two orders of similar items having value of Rs.11.50 Lakhs.

(OR)

\*Three orders of similar items having value of – Rs. 9.20 Lakhs.

{Here,\*similar means ‘supply and installation of **Fluid Mechanics and Hydraulics & Hydraulic Machines Lab Equipments/Instruments** for any Govt. Dept/IITs/NITs/Ranking Institutes /PSU/reputed organization in the last three years i.e. 2016-2017, 2017-2018 & 2018-2019 till the date of invitation letter. Copies of purchase order must be submitted.

viii Bidder must submit the latest GST Registration Certificate and copy of latest quarterly GST return.

- 17. The bidder must submit their financial bid in the prescribed format (Annexure-3) and no other format is acceptable.
- 18. Training Clause (if any) : **Onsite full training required.**
- 19. Testing/Installation Clause (if any) **Onsite installation and testing & commissioning required. The vendor should visit the site to understand the installation requirement.**
- 20. Performance Security shall be applicable: **5% of pre tax billing amount**
- 21. Purchase Order awarded bidder shall furnish one performance security of 5% of contract value (pre tax billing amount) in the form of bank guarantee valid for 39 months from the scheduled date of completion of assignment.
- 22. **Incomplete bids in any regards will be considered unfit and subject to cancelled without any notification. So it is suggested that vendor should submit complete quotation with all relevant documents.**
- 23. Sealed quotation to be submitted/ delivered having title **“Quotation for Fluid Mechanics and Hydraulics & Hydraulic Machines Lab”** at the address mentioned below, **Principal, Engineering College, Ajmer, N.H.8 , Barliya Circle, Near Nareli Temple, Ajmer.**
- 24. We look forward to receiving your quotation and thank you for your interest in this project.

Dr. U. S. Modani

Principal

**Annexure I**

S. N.	Item Name	Specifications
1	Equipment For Determine The Viscosity Of A Given Fluid (Falling Ball Viscometer)	<ul style="list-style-type: none"> <li>➤ Single columns: ID 75 mm Material- Borosilicate Glass Length- 1200mm.</li> <li>➤ Gate Valves: 2 Nos for each column</li> <li>➤ Stop Watch: Electronic.</li> <li>➤ Steel balls: Two of different size 10Nos</li> <li>➤ Plastic balls: Two of different density 10Nos</li> <li>➤ Tube light arrangement: For visualization.</li> <li>➤ Fluid should be provided.</li> <li>➤ Minimum overall dimension-20" x 20"</li> </ul>
2	Various Pressure Measuring Devices	<ul style="list-style-type: none"> <li>➤ Pressure measurement devices: -Single column manometer -U tube type manometer -Inclined tube type manometer -Pressure gauge</li> <li>➤ Pipe line : ½ inch Pipe material- GI For fitting the manometers</li> <li>➤ Orifice: Dia ≈ 10 mm To create the pressure difference. Made of brass 2mm thickness</li> <li>➤ Water Circulation: ½ HP Pump (KIRLOSKAR/TEXAMO/CRI/CROMPTON GREAVES/HAVELLS)</li> <li>➤ Sump Tank: Capacity 70 Ltrs. of 1.2mm thick of stainless steel sheet 304 grade.</li> <li>➤ Minimum overall dimension-72" x 20"</li> </ul>
3	Equipment For Determination Of Minor Losses	<ul style="list-style-type: none"> <li>➤ Test sections:</li> <li>➤ Made of stainless steel</li> <li>➤ Sudden Enlargement-From 15 mm to 25 mm, Sudden contraction- From 25 mm to 15 mm, Bend 1/2", Elbow 1/2", Ball valve 1/2", Gate valve 1/2"</li> <li>➤ Water Circulation: ½ HP Pump (KIRLOSKAR/TEXAMO/CRI/CROMPTON GREAVES/HAVELLS)</li> <li>➤ Flow Measurement: Using Measuring Tank with Piezometer, Capacity 25 Ltrs. 1.2mm thick of stainless steel 304 Grade.</li> <li>➤ Sump Tank: Capacity 50 Ltrs. of 1.2mm thick of stainless steel 304 Grade.</li> <li>➤ Pressure Measurement: Inverted U tube Manometer (No mercury needed).</li> <li>➤ Minimum overall dimension-75" x 20"</li> </ul>
4	Equipment For Determination C <sub>d</sub> for Broad Crested Weir	<ul style="list-style-type: none"> <li>➤ Channel test section: Size 600 x 250 x 180 mm of stainless steel 304 grade.</li> <li>➤ Types of weir/notches: 3 Broad Crested Weir (3 mm brass plate) 45° V Notch ( 3 mm brass plate) 60° V Notch 3 mm brass plate)</li> <li>➤ Digital pointer gauge: With least count 0.1mm for measuring</li> </ul>

		<p>the height of fluid over the notch in flow channel</p> <ul style="list-style-type: none"> <li>➤ Water Circulation: ½ HP Pump (KIRLOSKAR/TEXAMO/CRI/CROMPTON GREAVES/HAVELLS)</li> <li>➤ Flow Measurement: Using Measuring Tank with Piezometer, Capacity 25 Ltrs. 1.2mm thick of SS sheet 304 grade.</li> <li>➤ Sump Tank: Capacity 50 Ltrs. of 1.2mm thick of SS sheet 304 grade.</li> <li>➤ Stop watch: Electronic</li> <li>➤ Minimum overall dimension-44" x 18"</li> </ul>
5	Verification Of The Momentum Equation Apparatus	<ul style="list-style-type: none"> <li>➤ Test section: Fitted with a brass nozzle &amp; acrylic jet enclosure.</li> <li>➤ Four tragets: 90° Flat Plate, 180° Hemispherical Cup, 45°/135° oblique surface &amp; 135° conical surface</li> <li>➤ Water Circulation: ½ HP Pump (KIRLOSKAR/TEXAMO/CRI/CROMPTON GREAVES/HAVELLS)</li> <li>➤ Flow Measurement: Using Measuring Tank with Piezometer, Capacity 25 Ltrs. 1.2mm thick of SS sheet 304 grade.</li> <li>➤ Sump Tank: Capacity 50 Ltrs. of 1.2mm thick of SS sheet 304 Grade.</li> <li>➤ Stop watch: Electronic</li> <li>➤ Dead weights made of stainless steel 304 (50gms, 100gms, 200gms, 300gms, 500gms and 1000gms) each one should be provided with set-up.</li> <li>➤ Minimum overall dimension-45" x 18"</li> </ul>
6	Tilting Bed Open Channel Flow (To determine Mannings's & Chezy's coefficient of roughness for the bed of a given channel. To study and plot characteristics curve of hydraulic jump. To study velocity distribution in open channel flow.)	<ul style="list-style-type: none"> <li>➤ Flume dimensions: Test Section 8 m, Overall length 10 m, Depth of the flume: 0.35 m, Width of the flume: 0.20 m, Height of the flume bed from the ground: 1.5 m</li> <li>➤ Tilting should be done by screw jack.</li> <li>➤ Flume Material: <ul style="list-style-type: none"> <li>(i) Inlet and outlet section made from 2 mm thick SS 304 Grade sheet.</li> <li>(ii) Flume bed material should be made from 6 mm thick SS sheet 304 grade.</li> <li>(iii) All storage tanks/sump tanks should be made from 2 mm thick SS sheet 304 grade with sufficient stiffener support.</li> <li>(iv) Inlet and outlet of the flume should be from the bottom of the flume</li> </ul> </li> <li>➤ Flume stand material: Heavy duty rectangular steel hollow section Grade YST 310 as per IS 4923 painted with corrosion resistant with industrial PU Paint.</li> <li>➤ Test Section: Minimum 8 m long having transparent 10 mm thick Toughened Glass on either side of flume.</li> <li>➤ Pump Type: 5 HP having max. 1440 RPM and heavy duty Industrial AC drive compatible with the pump to be provided. Kirloskar/Crompton/Texamo/Havells make pump should be connected with the sump and should be able to provide discharge to the flume.</li> <li>➤ Pipes: Corrosion resistant Stainless steel grade 304/engineering plastic material.</li> <li>➤ Perforated plates, one horizontal and one vertical at the inlet</li> </ul>

		<p>made SS 304 Grade to be provided.</p> <ul style="list-style-type: none"> <li>➤ Sliding Tail gate made of SS 304 (thickness 3 mm sheet) at the outlet at the flume.</li> <li>➤ Venturimeter with manometer should be provided for discharge measurement at the delivery pipes.</li> <li>➤ There should be SS 304 grade rail throughout the top of the flume.</li> <li>➤ Three carriages should be provided which can move throughout the length of the flume from inlet to sliding tailgate.</li> <li>➤ The carriages should have Digital Height Gauge with least count of 0.1 mm.</li> <li>➤ Drainage valves: 2 numbers, one at the bottom of the inlet section and another at the bottom of the delivery pipe. These two to be fitted in a short drainage pipe and connected to the systems.</li> <li>➤ Detailed drawings, design and simulation to be provided for validation of strength of the flume for full load condition along with tender submission without which the bid will be rejected.</li> <li>➤ Maximum deflection of the bed should be within 3 mm. Simulation details and files should be provided along with the bid otherwise the bid will be rejected, Side wall deflection should be maximum 2 mm.</li> <li>➤ The following Accessory should be provided along with the set up:-, Pitot tube with single column manometer and Roughened bed Minimum 2 types.</li> <li>➤ Minimum overall dimension-38feet x 5feet</li> </ul>
7	Centrifugal Pump Test Rig with variable speed	<ul style="list-style-type: none"> <li>➤ Centrifugal pump: Kirloskar/Crompton/Texamo/Havells, Capacity 1 HP, Speed 2800 RPM (max.), Head 12 m (max.) should be coupled with an AC Motor with The resistor controlled AC drives for variable speed.</li> <li>➤ RPM and power should be measured by RPM Indicator with Proximity sensor and electronic energy meter respectively.</li> <li>➤ RPM of the Pump should be displayed with the help of RPM sensor having resolution of 0.0001428 &amp; least count 0.00857 RPM.</li> <li>➤ Water circulation: From sump tank, 1.2 mm thick, Capacity 110 liters, made of stainless steel 304 Grade</li> <li>➤ Flow measurement should be done by measuring tank, 1.2 mm thick, made of stainless steel 304 Grade, Capacity 70 liters, with piezometer tube and electronic stop watch.</li> <li>➤ Pressure measurement: Bourdon type Pressure Gauge</li> <li>➤ Control panel should be comprises of Mains Indicator and MCB for overload protection.</li> <li>➤ Operating/instruction manual and sample calculations with graphs of Head v/s Discharge, Pump efficiency v/s Discharge.</li> <li>➤ Minimum overall dimension-90" x 18"</li> </ul>
8	Francis Turbine Test Rig	<ul style="list-style-type: none"> <li>➤ Francis turbine: Output 1kW, Discharge 1000 LPM, speed 2200rpm and supply head 15m fitted with runner made of CNC Machined brass. Rope break drum type Dynamometer, Dia 200mm should be provided.</li> <li>➤ Water Circulation by centrifugal pump: 7.5 HP, 3 Phase</li> </ul>

		<p>Kirloskar/ Crompton/Texamo/Havells,</p> <ul style="list-style-type: none"> <li>➤ Sump tank: 200 liters capacity and draft tube should be made of Stainless steel.</li> <li>➤ Venturuy meter with Differential Pressure manometer should be provided for discharge measurement.</li> <li>➤ Minimum Efficiency Of the turbine should be at least 55%.</li> <li>➤ For Technical Evaluation Detailed drawings, Technical Manual, Sample calculations</li> <li>➤ <b>Characteristics Curves</b> <ul style="list-style-type: none"> <li>a) Unit Speed Vs Unit Discharge,</li> <li>b) Unit Power Vs Unit Speed,</li> <li>c) Unit Speed Vs Overall Efficiency,</li> </ul> </li> <li>➤ <b>Operating Curves</b> <ul style="list-style-type: none"> <li>a) Discharge Vs Output power,</li> <li>b) Discharge Vs overall Efficiency,</li> <li>c) <b>Muscle Curve:-</b> Efficiency Vs RPM of Francis turbine to be provided with Tender documents.</li> </ul> </li> <li>➤ Control Panel Compromising off Digital Rpm Indicator with Proximity sensor, MCB for overload protection, Mains indicator and phase prevention relay for safety.</li> <li>➤ Should be future ready to delivers us the Data logging facility in equipment.</li> <li>➤ Minimum overall dimension-68" x 30"</li> </ul>
9	0.5 inch nozzles	0.5 inch nozzles valves standard make
10	1 inch nozzles	1 inch nozzles valves standard make
11	0.5HP Motor pump	0.5HP Motor pump (Kirloskar/Crompton/Texamo/Havells)
12	0.5 Inch gardening PVC pipes	➤ 0.5 Inch gardening PVC pipes (100 feet length) standard make
13	1 Inch gardening PVC pipes	1 Inch gardening PVC pipes (100 feet length) standard make
	General Technical Terms and Conditions	<ul style="list-style-type: none"> <li>• All the Valves required in equipments should be manufactured as per EN ISO 9001 Standard and 100% tested in accordance with EN 12266-1 standard.</li> <li>• The whole set-up should be well designed and arranged on a rigid structure made of MS square pipe 32 mm × 32 mm × 2 mm thickness and painted with industrial polyurethane (PU) Paint.</li> <li>• All other materials in contact with water should be corrosion resistant.</li> <li>• The name plate of each experiment setup should be provided.</li> <li>• All water pipes, tanks and related fittings of each equipment should be made of Stainless Steel - 304 Grade</li> <li>• All the Equipment have to be demonstrated at college site, results should be repeatable within <math>\pm 2\%</math> of the sample calculations provided and standards.</li> <li>• Equipment should be upgradable for Data Logging Facility in future.</li> <li>• Operating/instruction manual and sample calculations,</li> </ul>



		Photographs and line diagram of the equipment must be provided along with bid documents for the technical evaluation. • All the products quoted should have CE Certification.
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**Annexure 2 (Invitation)**

**MANUFACTURER AUTHORIZATION FORM**

No. \_\_\_\_\_ dated \_\_\_\_\_

To

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dear Sir:

Package No. \_\_\_\_\_

We----- (Name of the OEM) who are established and reputed manufacturer of \_\_\_\_\_ (*name and description of goods offered*) having factories at \_\_\_\_\_ (*address of factory*) with factory registration no. ----- do hereby authorize M/s \_\_\_\_\_ (*Name and address of Agent*) to submit a bid, and sign the contract with you for the goods manufactured by us against the above bid.

We hereby extend our full warranty as per your invitation letter, for the goods and services offered for supply by the above firm against this Invitation for Bid.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer or OEM and should be signed by a person competent and having the power of attorney to legally bind the manufacturer.

## Annexure-3

**FORMAT FOR QUOTATION SUBMISSION**

(In letterhead of the supplier with seal)

Date: \_\_\_\_\_

To: \_\_\_\_\_

Sl. No.	Description of goods \ (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
<b>Total Cost</b>							

Gross Total Cost (A+B): Rs. \_\_\_\_\_

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. \_\_\_\_\_ (Amount in figures) (Rupees \_\_\_\_\_ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of \_\_\_\_\_ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Contact No. \_\_\_\_\_