



Government Engineering College, Ajmer,

N.H.8 , Barliya Circle, Near Nareli Temple, Ajmer

INVITATION LETTER

Package Code: TEQIP-III/RJ/geca/62

Current Date: 04-Jun-2019

Package Name: GECA/TEQIP-III /2018-19/

Method: Shopping Goods

Mechanical-FM Lab

To,

M/s _____

Sub: Invitation Letter For GECA/TEQIP-III /2018-19/Mechanical-FM Lab

Dear Sir,

1. 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 (if any)
1	Meta-centric height appratus	1	Govt. Engg. College, Ajmer N.H. 8, Barliya Circle, Near Nareli Temple, Ajmer	On site installation and testing & commissioning required. Price must be included in quotation
2	Vena-cotracta appratus	1		
3	Pitot tube appratus	1		
4	Coefficient of discharge of notch appratus	1		
5	Bernoulli's Appratus	1		
6	Flow rate measurement appratus	1		
7	Determination of pipe losses apratus	1		
8	Determination of head losses apratus	1		
9	Reynold's number appratus	1		
10	Velocity profile appratus for pipe	1		
11	Boundary layer measurement appratus	1		

2. 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

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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 re writing.
- 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.

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

8. 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.

8.1 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.

8.2 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.

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9. Payment shall be made in Indian Rupees as follows:
- Satisfactory Delivery & Installation - 90% of total cost**
Satisfactory Acceptance - 10% of total cost
10. Liquidated Damages will be applied as per the below:
- Liquidated Damages Per Day Min % :N/A
 - Liquidated Damages Max % : N/A
11. All supplied items are under warranty of **36** months from the date of successful acceptance of items and AMC/Others is **No**.
12. You are requested to provide your offer latest by **12:30 PM on 22-June-2019**.
13. The quotation received with in stipulated date and time shall be open on 22-June- 2019.
14. You are requested to attend the bid opening meeting on **22-June-2019**
15. Detailed specifications of the items are at Annexure I.
16. Training Clause (if any) **No**
17. Testing/Installation Clause (if any) **Yes**
18. Performance Security shall be applicable: **0%**
19. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
20. Proof of good working profile in terms of copy of purchase order of similar items and value.
21. Affidavit of non –black listed/debarred by any government organization in last five year.
22. Sealed quotation to be submitted/ delivered at the address mentioned below, Government Engineering College, Ajmer,N.H.8 , Barliya Circle, Near Nareli Temple, Ajmer
23. We look forward to receiving your quotation and thank you for your interest in this project.

Dr. Rohit Misra,
Principal

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Annexure I

S. N.	Item Name	Specifications
1	Determination of Meta-centric height of a given body.	<ul style="list-style-type: none"> •Pontoon:Material: Acrylic, provided withHorizontal Guide Bar for sliding weightRemovable StripsPointer with ScaleMoveable hanger •Water Tank:Size 550 x 500 x 400 mm (approx.), Thickness 1.2 mm •Transparent Window :Made of Glass/Perspex. •A set of weights is supplied with the apparatus. •Tank will be made of Stainless Steel. •Pendulum and graduated scale are for accurate measurement of Tilt angle. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.)
2	Determination of Cd, Cv& Cc for given orifice	<ul style="list-style-type: none"> •Set of Orifices :Material Acrylic Dia. 10mm and 15 mm 1 No. each •Set of Mouthpieces: Material Acrylic (1 No. each of) Dia. 10 mm (L/D = 1) Dia. 10 mm (L/D = 2.5) Dia. 10 mm (L/D = 4) •Pointer Gauge :To measure X-Y co-ordinates of Jet. •Water Circulation :½ HP Pump, MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS •Inlet tank:35 Ltrs. provided with variable head arrangement. •Flow Measurement :Using Measuring Tank with Piezometer, Capacity 25 Ltrs. •Sump Tank : Capacity 70 Ltrs. •Stop Watch : Electronic. •Control Panel Comprises of : Standard make On/Off Switch, Mains Indicator, etc. •Tanks will be made of Stainless Steel. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.).
3	Calibration of contracted Rectangular Notch and / Triangular	<ul style="list-style-type: none"> •Channel Test Section:Size 600 x 250 x 180 mm. •Notches :Material Brass 1 No. each of Rectangular Notch 45° V Notch

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	<p style="text-align: center;">Notch and determination of flow rate</p>	<p>60° V Notch</p> <ul style="list-style-type: none"> • Pointer Gauge : With Vernier scale. Water Circulation: ½ HP Pump MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS • Flow Measurement : Using Measuring Tank with Piezometer, Capacity 25 Ltrs. • Sump Tank : Capacity 50 Ltrs. • Stop Watch : Electronic. • Control Panel Comprises of: Standard make On/Off Switch, Mains Indicator, etc. • Tanks and Channel will be made of Stainless Steel. • An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. • The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.).
<p style="text-align: center;">4</p>	<p style="text-align: center;">Determination of velocity of water by Pitot tube.</p>	<ul style="list-style-type: none"> • Pitot Tube : Material Copper of compatible size fitted with vernier scale • Test Section : Material Clear Acrylic, compatible to 1" Dia. Pipe • Water Circulation : ½ HP Pump, MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS • Flow Measurement : Using Measuring Tank with Piezometer (Capacity 25 Ltrs.) • Sump Tank : Capacity 50 Ltrs. • Stop Watch : Electronic. • Pressure measurement: By differential pressure manometer. • Control Panel Comprises of: Standard make On/Off Switch, Mains Indicator, etc. • Tanks will be made of Stainless Steel. • An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. • The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.)
<p style="text-align: center;">5</p>	<p style="text-align: center;">Verification of Bernoulli's theorem.</p>	<ul style="list-style-type: none"> • Test Section : Convergent and Divergent section, Material Acrylic. • Piezometer Tubes : Material P.U. Tubes (7 Nos.) • Water Circulation : ½ HP Pump, MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS • Flow Measurement : Using Measuring Tank with Piezometer, Capacity 25 Ltrs. • Sump Tank : Capacity 70 Ltrs Inlet Tank : Capacity 20 Ltrs. with fixed overflow

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		<p>arrangement.</p> <ul style="list-style-type: none"> •Stop Watch :Electronic. •Control Panel Comprises of : Standard make On/Off Switch, Mains Indicator, etc. •Tanks will be made of Stainless Steel. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.).
6	<p>Calibration and flow rate determination using Venturimeter & Orifice meter and Nozzle meter</p>	<p>1)Measuring tank & stop watch. 2) Basic piping-1” 3) Orificemeter, Nozzlemeter&venturimeter</p> <ul style="list-style-type: none"> •Venturi meter:Body Material Acrylic, compatible to 1” Dia. Pipe. •Orifice meter :Body Material Acrylic, compatible to 1” Dia. Pipe. <p>Orifice plate made of Stainless Steel.</p> <ul style="list-style-type: none"> •Nozzle meter :Test section made of Clear Acrylic. Compatible to 1” dia pipe •Water Circulation :½ HP Pump, MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS •Flow Measurement :Using Measuring Tank with piezometer Capacity 25 Ltrs •Sump Tank : Capacity 50 Ltrs. •Stop Watch : Electronic •Pressure measurement: By Pressurized differential pressure manometer •Control Panel Comprises of : Standard make On/Off Switch, Mains Indicator, etc. •Tanks will be made of Stainless Steel. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.).
7	<p>Determination of head loss in given length of pipe.</p>	<ul style="list-style-type: none"> •Pipes (5 Nos.) :4 Smooth bore pipe and roughened bore pipe Diameters 1 : 19 x 16 mm Diameters 2 : 12.7 x 9.5 mm Diameters 3 : 10 x 8 mm Diameters 4 : 6 x 4 mm Diameters 5 : 19 x 16 mm (roughened) •Distance between Taping :1 m •Flow Meters :Venturimeter, Orifice Meter Pitot tube. •Manometer :For measuring pressure difference.

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		<p>1 Manometer Tube Range 1000 mm of WC. 1 Manometer Tube Range 1000 mm of Hg</p> <ul style="list-style-type: none"> •Pressure Tapings:38 Nos. •Water Circulation: By Pump, MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS •Flow Measurement :Using Measuring Tank, Capacity 40 liters •Sump Tank : Capacity 60 liters •Stop Watch : Electronic •Control Panel Comprises of : Standard make On/Off Switch, Mains Indicator, etc. •Tanks will be made of Stainless Steel. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU paint (MS square pipe 32 mm × 32 mm × 2 mm.)
8	<p>Determination of the Reynold's number for laminar, turbulent and transient flow in pipe.</p>	<ul style="list-style-type: none"> •Tube :Material Borosilicate Glass ID 14 mm approx., Length: 600 mm •Dye vessel :Material Stainless Steel, Capacity 1 Ltrs. (approx.) •Capillary Tube : Material Stainless Steel. •Constant Head Water Tank : Capacity 40 Ltrs. •Water Circulation : FHP Pump. MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES, HAVELLS •Measuring Cylinder:Capacity 1000 ml. •Stop Watch:Electronic •Sump Tank:Capacity 60 Ltrs. •Control Panel Comprises of:Standard make On/Off Switch, Mains Indicator, etc. •Tanks will be made of Stainless Steel. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.).
9	<p>Determination of Coefficient for minor losses in pipes.</p>	<ul style="list-style-type: none"> •Sudden Enlargement :From 15mm to 25mm •Sudden Contraction :From 25mm to 15mm. •Bend : ½" •Elbow: ½" •Ball valve : ½" •Gate valve : ½" •Water Circulation : ½ HP Pump, MAKE: KIRLOSKAR, TEXAMO, CRI, CROMPTON GREAVES,

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		<p>HAVELLS</p> <ul style="list-style-type: none"> •Flow Measurement :Using Measuring Tank with Piezometer, Capacity 25 Ltrs •Pressure Drop Measurement :Pressurized differential Pressure manometer •Sump Tank : Capacity 50 Ltrs. •Stop Watch : Electronic. •Control Panel Comprises of : Standard make On/Off Switch, Mains Indicator, etc. •Tanks will be made of Stainless Steel. •An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. •The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint (MS square pipe 32 mm × 32 mm × 2 mm.)
10	To study the velocity distribution in a pipe and also to compute the discharge by integrating the velocity profile	Same as experiment set mentioned at S. No. 4
11	To study the boundary layer velocity profile over a flat plate and to determine the boundary layer thickness	<ul style="list-style-type: none"> • Test section with L x W x H - 50 x 100 x 250 mm should be attached bellow the Nozzle Exit. • Nozzle Exit area should be 50 x 100 mm. • Test Plate (Dimension 250 x 55 x 5 mm, Chamfer - 30°) should be with two surfaces of different roughness, movable from 0 to 250 mm • Blower and motor should be of compatible capacity. • 8 - tube Manometer should be provided. • Micro-Pitot Tube with Vernier should be movable from 0.35 to 50 mm. • 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 PU Paint. • Photographs and line diagram of the equipment must be provided along with tender documents.
12	Other Conditions	<ul style="list-style-type: none"> • The name plate of each experiment setup should be provided. • Detailed hard copy manuals of experiments that can be perform on each experimental setup. • All pipes, tanks and related fittings should be made of Stainless Steel - 304 Grade • The Thickness of tank sheets should be 1.2 mm • Suitable steel cup-board (78X36X19 inch) to keep accessories of experimental setup.

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FORMAT FOR QUOTATION SUBMISSION

(In letterhead of the supplier with seal)

To: _____

Date: _____

Sr. 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)
Total Cost							

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. _____