

राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM
(An Institution of National Importance Under MHRD, Govt. of India)

INVITATION LETTER

Package Code: TEQIP-III/2019/ntst/96

Current Date: 25-Apr-2019

Package Name: NITS/TEQIP-III/CE/03

Method: Shopping Goods

Sub: INVITATION LETTER FOR NITS/TEQIP-III/CE/03

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. No.	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	Equipment for Water Resources Engineering Lab	1	NIT Sikkim	YES

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 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 **45** 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.
9. Payment shall be made in Indian Rupees as follows:
Satisfactory Delivery & Installation - 10% of total cost
Satisfactory Acceptance - 90% of total cost
10. Liquidated Damages will be applied as per the below:
Liquidated Damages Per Day Min % : 0
Liquidated Damages Max % : 10
11. All supplied items are under warranty of **24 Months** from the date of successful acceptance of items and AMC/Others is NA.
12. You are requested to provide your offer latest by **17:30** hours on **31-May-2019**.
13. Detailed specifications of the items are at **Annexure-I**.
14. Training Clause (if any) **YES**
15. Testing/Installation Clause (if any) **YES**
16. Performance Security shall be applicable: **0%**
17. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
18. Sealed quotation to be submitted/ delivered at the address mentioned below:
National Institute of Technology Sikkim,
Barfung Block, Ravangla, South Sikkim
Pin Code-737139.
19. We look forward to receiving your quotation and thank you for your interest in this project.


Dr. Achintesh N. Biswas
Nodal Officer (Procurement)
Nodal Officer (Procurement)
TEQIP-III
National Institute of Technology Sikkim

ANNEXURE-I

S. No.	Name of the Item	Quantity	Specification
1.	Flow channel and Flume Apparatus	1	<p><u>Flow Channel and Flume Apparatus (5m)</u> It should be designed for students to study the principles of fluid mechanics pertaining to engineering structures in open channel flow. The unit should come with an open channel made of transparent working section mounted on a strong framework. The unit is to be supplied with a 5 m long flume which can be tilted using a calibrated screw jack. The unit is to be fitted with pressure tapings and fixing points as well as longitudinal scale. The scale should be positioned at the top of the channel so that the depth gauges and pilot-static tubes can be positioned along the channel length. The unit should be incorporated with a sump tank and a water pump. The water flow rates can be measured by a flow meter. Specification: Flow Channel Material: Clear acrylic Size: 5,000 mm (L), 250 mm (H), 75 mm (W) Sump Tank Capacity: 250-L Flow rate of circulation pump: Up to 2.0 L/sec Vernier Level Gauges 3 units of vernier caliper Should be supplied with the followings:-</p> <ul style="list-style-type: none"> • Venturi flume • Sharp and broad crested weirs • 3 vernier level gauges • Crump weir • Adjustable undershot weir • Pitot tube and manometer board • Culvert fitting, one edge square, one rounded • Flow splitters, central wall with various nose pieces • Free overflow spill way section complete with ski jump, sloping apron and bladed reverse curvature attachments • Syphon spillway and air regulated syphon • Model radial gate • Wave generator and wave absorbing beach • Artificially toughened bed 2.5 m (2pieces) • False floor sections for gradually varied profiles <p>The unit should be supplied with Operating and Experimental Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results.</p>
2	Double Ring Soil Infiltrometer	2	<p><u>Double Ring Soil Infiltrometer</u> The standard set of the double ring Infiltrometer should consist of 2 steel rings with different diameters, a</p>

			<p>hammer, floats, a stainless steel hammering cross and a stopwatch.</p> <p>The instrument should consist of two centric rings, driving plate, for inner and outer rings. The outer ring (ID = 45 cm), the inner ring (ID = 30 cm)</p>
3	Pan Evaporimeter	1	<p><u>Pan Evaporimeters</u></p> <p>Pan Evaporimeter IS 5973-1970 The equipment consists of a large cylindrical pan, 220 mm in diameter and 255 mm deep, made from copper sheet, tinned inside and painted white outside Pan: 1 No.</p> <p>Thermometer: 1 No.</p> <p>Measuring Jar: 1 No.</p> <p>Wooden Stand: 1 No.</p>
4	Vertical Axis Cup Type Water Velocity Sensor with Handheld Data-logger	1	<p><u>Vertical Axis Cup Type Water Velocity Sensor with Handheld Data-logger</u></p> <p>Technical Features : 6 Cup Wheel Cup type Type</p> <p>Current meter body : All parts of brass, chrome plated</p> <p>Operating Range : 0.3 to 3.5 meter per second</p> <p>Accuracy : For velocities up to 0.3 m/s, 1% Full scale, For velocities >0.3 m/s, 0.5% Full Scale</p> <p>Contact chamber : Magnetic</p> <p>Dimension : Bucket Open end diameter: 2.0 inch, Bucket diameter: 5.0 inch</p> <p>Rates spin test > 75 seconds</p> <p>Accessories: Instrument oil, cleaning cloth, screwdriver with 10kg fish weigh, 10m suspension wire and a rugged wooden carrying case.</p> <p>Data Logger Features & Specifications:</p> <p>Sensor Input: Any Current Meters of any make with switch closure output</p> <p>Mode of Operation: Velocity Logger Mode & Rev. Counter Mode</p> <p>Parameter Monitored: in Velocity Logger Mode : Date, Time, Velocity (m/s).</p> <p>In Rev. Counter Mode: Date, Time, Rev. & duration.</p> <p>Display: LCD (16 X 2) to display the instrument status.</p> <p>Keyboard: provided for on-site programming.</p> <p>Logging: Automatic (after measurement)</p> <p>Site Reference: Programmable</p> <p>View/Delete Data: User can be able to view / delete logger data at site without help of computer.</p> <p>Current Meter Revolution Buzzer : Provided with user selectable ON/OFF Feature</p> <p>Key Tone: Provided with user selectable ON/OFF Feature</p> <p>Back Light: Provided with user selectable High, Medium & Low intensity and ON/Timed ON feature.</p> <p>LCD Contrast: Provided with user selectable 0 to 7 contrast Levels.</p> <p>Real Time Clock: Internal with accuracy of +/- 2 minutes /year & leap year compensation</p> <p>Memory: 8192 data sets.</p> <p>Battery: 2XAA Alkaline Batteries (easily replaceable onsite).</p>

			<p>Battery Monitoring: Battery Level display on LCD with Low Battery Warning</p> <p>Operating Humidity :0 to 100%, Operating Temp: - 20 to 70 °C</p> <p>Data Port: USB Port for Downloading Data from Data Logger to Computer/Laptop</p>
5	Fluid Friction Measurements Apparatus	1	<p><u>Fluid Friction Measurements Apparatus</u></p> <p>It should be designed for students to study on the fluid friction head losses of an incompressible fluid flow. The unit should be self contained supplied with facilities for students to study the friction losses on smooth-bore pipes of various diameters and an artificially roughened pipe. In addition to the study of losses in straight pipes, a wide range of accessories are also provided including 90° bend, elbow and T, 45° elbow and Y, sudden contraction and enlargement, inline strainer, various valves and flow meters.</p> <p>SPECIFICATIONS</p> <p><i>i) Test Rig</i></p> <p>High quality frame and backboard to support test circuits comes with the following facilities:</p> <ol style="list-style-type: none"> Smooth-bore pipes of various diameters (6mm, 10mm and 17mm) An artificially roughened pipe (17mm) 90° bend 90° elbow 90° T 45° elbow 45° Y Sudden enlargement Sudden contraction Ball valve Gate valve Globe valve Inline strainer Venturi made of clear acrylic Orifice plate made of clear acrylic Pitot static tube section made of clear acrylic <p><i>ii) Manometers</i></p> <p>Water manometer : 1 tubes of 1 m length with 1mm reading.</p> <p>Differential pressure transmitter (Replace with mercury manometer)</p> <p>REQUIREMENT</p> <p>Hydraulic Bench (optional accessories)</p> <p>OVERALL DIMENSION</p> <p>Height : 2.05 m</p> <p>Width : 0.45 m</p> <p>Length : 2.40 m</p> <p>The unit should be supplied with Operating and Experimental Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results.</p>

6	Hydraulic Bench	1	<p><u>Hydraulic Bench</u></p> <p>The unit should consist of upper and lower mouldings mounted on a steel structure fitted with lockable wheels. The mouldings should be made of fibreglass for lightweight and corrosion resistant features. An open channel and volumetric measuring tank are to be incorporated with the bench and means for mounting and connecting the various accessories are to be provided.</p> <p>SPECIFICATIONS</p> <p>a) <i>Sump Tank</i> Material : Fiberglass Capacity : 120-L</p> <p>b) <i>Volumetric Tank</i> Material : Fiberglass Capacity : 85-L</p> <p>c) <i>Deliver Pump</i> Type : Centrifugal pump Material : Stainless steel Capacity : 0 to 60 LPM Power : 0.55 kW Head : 20 meters</p> <p>The unit should be supplied with Operating and Experimental Manuals in English giving full descriptions of the unit, summary of theory, experiment procedures and typical experimental results.</p>
7	Laminar flow table	1	<p><u>Laminar Flow Table</u></p> <p>Designed to simulate ideal fluid flow and give clear visualisation of the flow patterns created using water as the working fluid</p> <p>SPECIFICATIONS</p> <p><i>Working Section</i> Width inside moulding: 606 mm Length of glass plates: 892mm Distance between glass plates: 3.2mm Sinks/sources: 8 tappings in 7 positions Dye injectors: 19 hypodermic needles</p> <p><i>Models to be Supplied</i> 2 x canal banks 2 x rectangles 3 x cylinders 1 x aerofoil 1 bottle blue dye (water based)</p> <p>The unit should be supplied with Operating and Experimental Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results.</p>
8	Flow over Weirs	1	<p><u>Flow Over Weirs</u></p> <p>Apparatus should come with two weir plates of different shapes. The unit should consist of the following to be used in conjunction with the flow channel in the moulded bench top of a Hydraulic Bench.</p> <p>a) A delivery nozzle in the base of the channel.</p>

			<p>b) A stilling baffle in the walls of the channel.</p> <p>c) A Vernier hook and point gauge mounted on an instrument carrier (movable) located on the side channels of the moulded top.</p> <p>SPECIFICATIONS</p> <p><i>Weir Plates</i></p> <p>Height : 160 mm</p> <p>Width : 230 mm</p> <p>Thickness : 4 mm</p> <p><i>Rectangular Notch</i></p> <p>Height : 82 mm</p> <p>Width : 30 mm</p> <p><i>Vee Notch</i></p> <p>Angle of vee notch weir: 90° inclusive</p> <p>Hook & point gauge: 0 to 150 mm, ±0.1 mm</p> <p>REQUIREMENT</p> <p>Hydraulics Bench (optional accessories)</p> <p>The unit should be supplied with Operating and Experimental manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results.</p>
9	Pressure Measurement Bench	1	<p><u>Pressure Measurement Bench</u></p> <p>It should be a complete laboratory bench for test and calibration of the various elements of pressure readings as defined by new specifications for the industry.</p> <p>The measuring unit should comprise of the following main components:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pressure gauge <input type="checkbox"/> Vacuum gauge <input type="checkbox"/> Differential pressure gauge <input type="checkbox"/> U-tube manometer <input type="checkbox"/> Single tube manometer <input type="checkbox"/> Inclined tube manometer <p>The unit is to be supplied with:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pressure calibrator <input type="checkbox"/> Pressure/ vacuum pump <input type="checkbox"/> Pressure and vacuum tank <p>SPECIFICATIONS</p> <p><i>a) Vacuum/Pressure Pump</i></p> <p>Free air capacity: 15.6 LPM</p> <p>Max. vacuum: 22" Hg</p> <p>Max. pressure: 20 psi</p> <p><i>b) Pressure Gauge</i></p> <p>Material/Type: Fully stainless steel (oil filled)</p> <p>Range: 0 to 35 psi</p> <p><i>c) Vacuum Gauge</i></p> <p>Material/Type: Fully stainless steel (oil filled)</p> <p>Range: -760 to 0 mm Hg</p> <p><i>d) Differential Pressure Gauge</i></p> <p>Material: Aluminum case/acrylic cover</p> <p>Max diff. pressure: 30 psi</p> <p><i>e) Inclined Tube Manometer</i></p>

			<p>Material: Acrylic Plastic Range: 0 to 3" H₂O</p> <p>f) Single-Tube Manometer Material: Steel casing/anodised aluminium scale Range: 0 to 2.0 kPa</p> <p>g) U-Tube Manometer Material: Acrylic plastic Range: 0 to 1000 mm H₂O</p> <p>h) Vacuum Tank Material: Stainless steel Volume: 1.1 L</p> <p>i) Pressure Tank Material: Stainless steel Volume: 1.1 L</p> <p>j) Pressure Calibrator Operating range: 2bar / 28psi Over range: 4bar / 58psi</p> <p>UTILITY REQUIREMENT Electrical supply: 230VAC/1-phase/50Hz</p> <p>OVERALL DIMENSIONS Height: 1.15 m Width: 1.20 m Depth: 0.75 m</p> <p>The unit should be supplied with Operating and Experimental Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results.</p>
10	Centrifugal Pump Demonstration unit	1	<p><u>Centrifugal Pump Demonstration Unit</u></p> <p>The centrifugal pump is to be designed with transparent casing to allow visualisation of the impeller rotation. The unit should be maintenance-free due to its robust construction. As a result of its clear layout, the unit should be suitable for demonstrations and for student experiments.</p> <p>DESCRIPTION</p> <p>This unit is to be constructed on stable steel base plate, comprises of a fixed speed centrifugal pump, a water tank and all required pipe works. It should be installed with necessary pressure gauges and flowmeter for pump characteristic studies. The pump casing should be made of transparent material; therefore the centrifugal pumps mechanism can be clearly visualised.</p> <p>TECHNICAL SPECIFICATIONS</p> <p>i) Pump Type: Centrifugal pump Maximum head : 9 m H₂O Maximum flow : 120 LPM</p> <p>ii) Circulation Tank Cylindrical, transparent tank Volume : 15 L</p>

		<p>iii) Pressure gauge Delivery side: 0 to 1.2 bar Suction side: -1 to 1 bar</p> <p>iv) Rotameter Size: 1" Range: 0 to 150 LPM</p> <p>OPTIONAL ITEMS</p> <p>- EI</p> <p>DIGITAL INSTRUMENTATION</p> <p>i) 2 units of digital indicator ii) 1 unit of electronic flowmeter iii) 2 units of pressure sensor</p> <p>- DAS</p> <p>SOLDAS DATA ACQUISITION SYSTEM</p> <p>i) A PC with latest Pentium Processor ii) An electronic signal conditioning system iii) Stand alone data acquisition modules iv) Windows based software</p> <ul style="list-style-type: none"> <input type="checkbox"/> Data Logging <input type="checkbox"/> Signal Analysis <input type="checkbox"/> Process Control <input type="checkbox"/> Real-Time Display <input type="checkbox"/> Tabulated Results <input type="checkbox"/> Graph of Experiment Results <p>- CAL</p> <p>SOLCAL COMPUTER AIDED LEARNING SOFTWARE</p> <p>i) Interactive multimedia features ii) Graphical simulation iii) Experiment results samples iv) Full experiment manuals</p> <p>OVERALL DIMENSION</p> <p>Height : 0.75 m Width : 1.00 m Depth : 0.60 m</p> <p>MANUAL</p> <p>The unit should be supplied with Operating and Experiment Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results.</p>
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FORMAT FOR QUOTATION SUBMISSION

(In letterhead of the supplier with seal)

Date:

To,

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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)
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.: