



SUPPLEMENTAL/BID BULLETIN NO. 1

Date: December 13, 2023
Title: IB-2023-11-20 EARLY PROCUREMENT ACTIVITY (EPA) FOR SUPPLY, DELIVERY, AND INSTALLATION OF LABORATORY SUPPLIES & EQUIPMENT
Reference No.: 10366291

This Supplemental/Bid Bulletin is issued to all prospective bidders to clarify, modify, and/or amend items in the Bidding Documents as discussed and agreed during the Pre-Bid Conference held on December 7, 2023, for the above-mentioned procurement project. This shall form an integral part of the Bid Documents.

REFERENCE	GENERAL QUERIES	AMENDMENTS/ CLARIFICATIONS
<p>Section I. Invitation to Bid</p> <p>1. <i>EASTERN VISAYAS STATE UNIVERSITY</i>, through the <i>REGULAR AGENCY FUND (RAF) FY 2023</i> intends to apply the sum of <i>Php4,055,000.00</i> being the ABC to payments under the contract for <i>IB-2023-11-20 SUPPLY, DELIVERY AND INSTALLATION OF LABORATORY SUPPLIES & EQUIPMENTS</i>. Bids received in excess of the ABC shall be automatically rejected at bid opening.</p>		<p>1. <i>EASTERN VISAYAS STATE UNIVERSITY</i>, through the <i>REGULAR AGENCY FUND (RAF) FY 2024</i> intends to apply the sum of <i>Php4,055,000.00</i> being the ABC to payments under the contract for <i>IB-2023-11-20 SUPPLY, DELIVERY AND INSTALLATION OF LABORATORY SUPPLIES & EQUIPMENTS</i>. Bids received in excess of the ABC shall be automatically rejected at bid opening.</p>
<p>Section I. Invitation to Bid</p> <p>2. The <i>EASTERN VISAYAS STATE UNIVERSITY</i> now invites bids for the above Procurement Project. Delivery of the Goods is required by <i>EVSU, Tacloban City within 60 calendar days from the receipt of Notice to Proceed</i>. Bidders should have completed, within 2 years from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).</p>	<p>The delivery period for this project is 60 calendar days. For lot 1, the manufacturing period will take about 12 weeks or 90 days. Moreover, the shipping from the manufacturer from Spain to Manila is about 30 days. Hence, can the Procuring Entity consider extending the delivery period to 120 days?</p>	<p>The same delivery period (60CD) will be followed. The supplier must deliver the goods or perform the services procured within the period prescribed by the Procuring Entity, as specified in the PBD. However, if delays are likely to be incurred, the supplier must notify the Procuring Entity in writing. It must state therein the cause/s and duration of the expected delay. The Procuring Entity may grant time extensions, at its discretion, if based on meritorious grounds, with or without liquidated damages.</p> <p>In all cases, the request for extension should be submitted before the lapse of the original delivery date. The maximum allowable extension shall not be longer than the initial delivery period as stated in the original contract.</p>



REFERENCE	GENERAL QUERIES	AMENDMENTS/ CLARIFICATIONS
<p>Section I. Invitation to Bid</p> <p>11. For further information, please refer to:</p> <p>THE SECRETARIAT Bids and Awards Committee Eastern Visayas State University Salazar Street, Quarry District, Tacloban City, Leyte 6500, Philippines Telephone No. 0953-355-7046 Tm Email: evsu.bacsecretariat@evsu.edu.ph</p>		<p>11. For further information, please refer to:</p> <p>THE SECRETARIAT Bids and Awards Committee Eastern Visayas State University Arch. Lino Gonzaga Ave., Tacloban City, Leyte 6500, Philippines Telephone No. 0953-355-7046 Tm Email: evsu.bacsecretariat@evsu.edu.ph</p>
<p>Section II. Instruction to Bidders</p> <p>2. Funding Information</p> <p>2.1. The GOP through the source of funding as indicated below for 2023 in the amount of <i>Four Million Fifty-Five Thousand Pesos Only (Php4,055,000.00)</i>.</p> <p>2.2. The source of funding is: REGULAR AGENCY FUND (RAF) FY 2023</p>		<p>2. Funding Information</p> <p>2.1. The GOP through the source of funding as indicated below for 2024 in the amount of <i>Four Million Fifty-Five Thousand Pesos Only (Php4,055,000.00)</i>.</p> <p>2.2. The source of funding is: REGULAR AGENCY FUND (RAF) FY 2024</p>
<p>Section II. Instruction to Bidders</p> <p>15. Sealing and Marking of Bids</p>	<p>This is a general question for all. Would you mind, for the financial documents, if its back-to-back? like the papers are printed back-to-back so we can save paper?</p>	<p>No. All bid proposal shall be submitted in a one-page-per-paper presentation.</p>
<p>Section II. Instruction to Bidders</p> <p>19. Detailed Evaluation and Comparison of Bids</p> <p>19.4 The Project shall be awarded as <i>One (1) Project having several items that shall be awarded as one contract.</i></p>	<p>Is this procurement one lot?</p>	<p>19. Detailed Evaluation and Comparison of Bids</p> <p>19.4 The Project shall be awarded as One (1) Project having several lots, which shall be awarded as separate contracts per lot. However, in case more than one (1) lot is awarded to the same bidder, one (1) contract may be entered into containing all the lots awarded.</p>



REFERENCE	GENERAL QUERIES	AMENDMENTS/ CLARIFICATIONS
<p>Section III. Bid Data Sheet</p> <p>ITB Clause 9 Prospective bidders may submit their written request for clarification on and/or interpretation of any part of the Bidding Documents, either to EVSU BAC Secretariat Office or through electronic mail at evsu.bacsecretariat@evsu.edu.ph not later than November 9, 2023. Clarifications made and submitted beyond the abovementioned date shall not be accepted and/or entertained further.</p>		<p>ITB Clause 9 Prospective bidders may submit their written request for clarification on and/or interpretation of any part of the Bidding Documents, either to EVSU BAC Secretariat Office or through electronic mail at evsu.bacsecretariat@evsu.edu.ph not later than December 11, 2023. Clarifications made and submitted beyond the abovementioned date shall not be accepted and/or entertained further.</p>
<p>Addition of ITB Clause 19.2 in the BDS</p>		<p>13.1 The Project allows partial bids, bidders may submit a proposal on any of the lots, and evaluation will be undertaken on a per lot basis. In this case, the Bid Security as required by ITB Clause 15 shall be submitted for each lot separately.</p>
<p>Section VII. Technical Specifications</p>	<p>We took notice of the explicit mention of the brand name, INFINIT referring to the four (4) items (LOT 1) in the technical specifications of the bidding documents. The issue was raised in the pre-bid con and indeed, TWG confirmed their preference for this brand. The technical group believes that it was reasonable for them to indicate the brand name due to its compatibility with their existing equipment.</p> <p>To utilize the exception under Section 18, it is necessary for the parts to be of the same brand. Currently, the university's existing brand is EDIBON. Therefore, specifying the brand 'INFINIT' whether in the bidding documents or as the declared preference of the end-user, is an absolute prohibition under the law. It is important to note that what is directly prohibited is also indirectly prohibited.</p> <p>In adherence to the principles of transparency and competitiveness, the INFINIT brand must be struck</p>	<p>This procurement for Lot 1 is an exception to the rule of not allowing reference to specific brand since there is already an existing unit of hydraulic bench in the laboratory. Hence, the compatibility factor is an important concern for the equipment to work and be operational. Please see attached amended Schedule of Requirements in Annex "A" and Technical Specification in Annex "B" for reference.</p>



REFERENCE	GENERAL QUERIES	AMENDMENTS/ CLARIFICATIONS
	down as it is a direct violation of the GPRA and its IRR. Corollary thereto, the committee should require the bidders to submit certification or supporting documents to prove that the parts or items offered are compatible with EVSU’s existing equipment. It is crucial for the committee to inform prospective bidders of the university’s current brand for appropriate disposition. NPM 093-2017.	
Section VII. Technical Specifications	For lot no. 2, the specifications provided is not for source meter but for oscilloscope instead.	An exact specification of the source meter has been provided per clarification from the end-user unit. Please see attached amended Schedule of Requirements in Annex “A” and Technical Specification in Annex “B” for reference.
Section VIII. Checklist of Technical and Financial Documents	Do we need authorization from the manufacturer or distributor for the items to make sure they are original or legit? Will that be part of the technical component?	Yes. An authorization from the manufacturer shall be included in the submitted proposal and shall also include calibration requirements. Please see attached amended Checklist of Technical and Financial Documents in Annex “C” for reference.

All statements and formats referring to this clause should be amended/corrected accordingly.

For guidance and information of all concerned.

For further information, please refer to:

(SGD) VINCENT B. CABANTOC
 Head, BAC Secretariat
 CP No. 0953-355-7046 - TM
 Email Add: evsu.bacsecretariat@evsu.edu.ph

Noted:

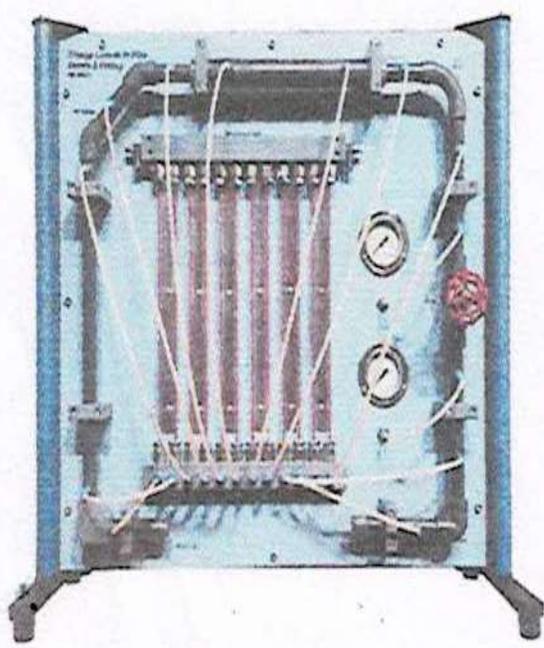
(SGD) BENEDICTO T. MILITANTE, JR., Ph.D., J.D.
 Vice President for Administration & Finance
 Chairperson, Bids and Awards Committee

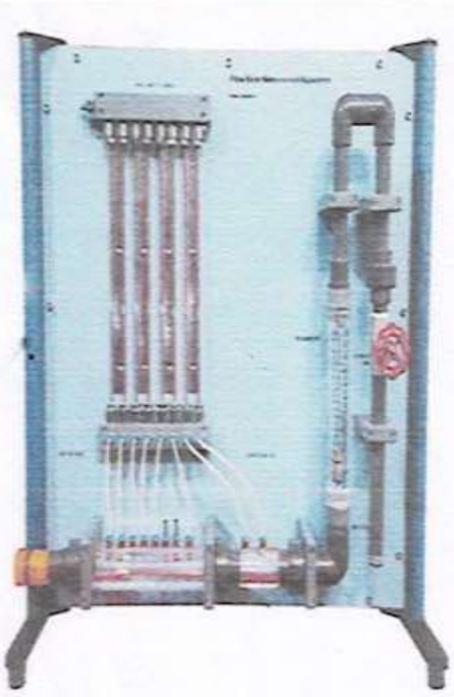
ANNEX “A”

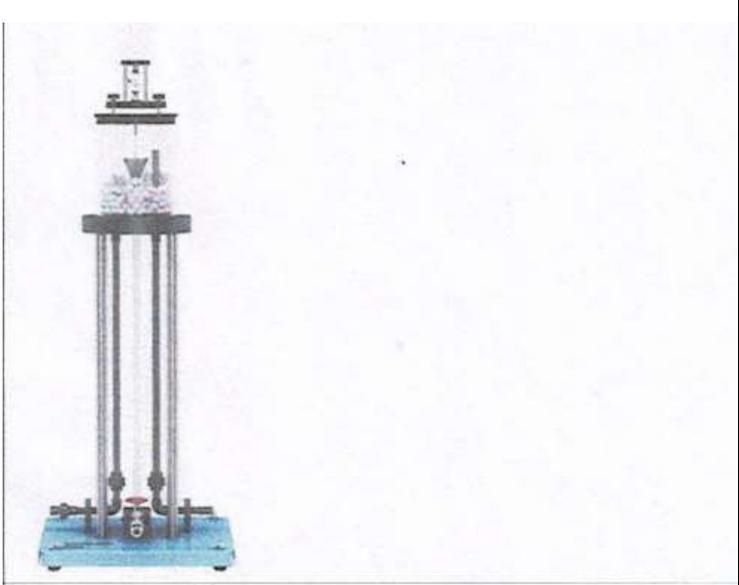
Schedule of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

SUPPLY, DELIVERY AND INSTALLATION OF LABORATORY SUPPLIES & EQUIPMENT				
Item Number	Description	UNIT	QTY	Delivered, Weeks/ Months
1	P.R. No. 10-0704-23 COE	LOT	1	
	<p style="text-align: center;">Item Description</p> <p>PIPE FRICTION APPARATUS</p>  <p>This apparatus is designed to allow the detailed study of the fluid friction head losses which occur when an incompressible fluid flows through pipes, bends, valves and pipe flow metering devices. Friction head losses in straight pipes of different sizes can be investigated over a range of Reynolds' numbers from 103 to nearly 5000, there by covering the laminar, transitional and turbulent flow regimes in smooth pipes. In addition, an artificially roughened pipe is supplied which, at the higher Reynolds' numbers, shows a clear departure from the typical smooth bore pipe characteristics. Pipe friction is one of the classic laboratory experiments and has always found a place in the practical teaching of fluid mechanics.</p> <p>Experiments: Laminar to turbulent flow regimes Energy Losses in Pipes fittings and Bends Rugosity Flow Measurement using venture meter Flow measurement using Orifice Plate Use of Pitot Static Tube Use of Manometers</p> <p>Manuals: The unit is supplied with Operating and Experiment Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results</p>	Unit	1	MUST BE WITHIN SIXTY (60) CALENDAR DAYS UPON RECEIPT OF THE NOTICE TO PROCEED (NTP)

<p>ENERGY LOSSES IN PIPE APPARATUS</p>  <p>The experimental set-up can be used on its own or with the Hydraulic bench. A supply of water is all that is required for operation. The unit is suitable for measuring pipe friction losses for laminar and turbulent flows. The experimental set-up is clearly laid out on a training panel. For investigations on laminar flow and for turbulent flow, the supply is provided via the Basic Hydraulics Bench directly (or the lab water mains). The water flows through a pipe section; the flow is adjusted using reducing valves. The connection to the required measuring device is made via pressure tapings.</p> <p>Experiments</p> <ul style="list-style-type: none"> • Measurement of the pressure loss for laminar flow. • Measurement of the pressure loss for turbulent flow. • Determination of the critical Reynolds' number. • Measurements using a bank Manometer. • Investigate pressure losses at segment bend and bends. • Pressure losses at contraction and enlargement. • Determination of simple valve characteristics. <p>Technical Data</p> <p>Measuring range Water Tube Manometer - upto 12 tubes Multi-tube 300mm of WC</p> <p>Pressure Gauge Gauge 2pc</p> <p>Parts Pipe diameter: 17mm (inner), outer diameter: 21mm Enlargement pipe diameter: 26mm (inner), outer diameter: 32mm Contraction diameter: 17mm 45° elbow 90° elbow Sharp bend Small bend Contraction and enlargement 12 tube manometer bank</p> <p>Specification</p> <ul style="list-style-type: none"> • Experimental set-up for the investigation of pipe friction, for use with the Basic Hydraulics Bench or lab water connection. • Bends expansion and contraction, elbows and gate valve with manometer bank on Bakelite base on aluminum structure frame. • Manometer bank for measuring pressure drop in fitting, elbows, bend etc made easily and measuring individually. 	<p>Unit</p>	<p>1</p>			
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<p>FLOW METER MEASUREMENT APPARATUS</p>  <p>The apparatus consists of three very important flow measuring devices which are Venturi meter, orifice meter and rotameter. All three flow meters are extensively used in industrial sector.</p> <p>Flowmeter Measurement Apparatus is designed to operate together with a basic hydraulic bench or any water supply. It is to familiarize the students with typical methods of flow measurement of an incompressible fluid.</p> <p>The apparatus is able to demonstrate the flow measurement comparison by using a venturi device, orifice device and rotameter (Variable Area Flowmeter). The flow comparison can be further be used to compare against the flow measurement of the hydraulics bench which can be either by gravimetric or Volumetric Method, depending on the type of hydraulics bench in use.</p> <p>Experiments</p> <ul style="list-style-type: none"> • Direct comparison of flow measurement using venturi, orifice, rotameter. • Comparison of pressure drop against each device. • Application of the Bernoulli's equation for incompressible fluids. • Determination of flow coefficient of a venturi meter & an orifice plate. • Establishment of the relationship between flow and differential pressure/fluid velocity for venturi meter and orifice plate. <p>Specification</p> <ul style="list-style-type: none"> • Primary flow measuring devices, clear plastics • Venturi meter, orifice meter, rotameter • Differential pressure measurement: Water manometer, 8 tubes <p>Technical Data</p> <p>Venturi throat diameter: 16mm Venturi inlet diameter: 26mm Orifice upstream diameter: 26mm Orifice diameter: 16mm Rotameter maximum range: 4-36 ltr/min</p>	Unit	1			

<p>OSBORNE REYNOLD'S APPARATUS</p>  <p>The Osborne Reynold's Apparatus has been designed for students experiment on the laminar, transition and turbulent flow. It consists of a transparent header tank and flow visualization pipe. The header tank is provided with a diffuser and stilling materials at the bottom to provide a constant head of water to be discharged through a bell mouth entry to the flow visualization pipe. Flow through this pipe is regulated using a control valve at the discharge end. The water flow rate through the pipe can be measured using the volumetric tank (or volumetric cylinder). Velocity of the water can therefore be determined to allow the calculation of the Reynold's Number. A dye injection system is installed on top of the header tank so that flow pattern in the pipe can be visualized.</p> <p>The Osborne Reynolds Demonstration apparatus is equipped with a visualization tube for students to observe the flow condition. The rocks inside the stilling tank are to calm the inflow water so that there will not be any turbulence to interfere with the experiment. The water inlet / outlet valve and dye injector are utilized to generate the required flow.</p> <p>Experiments</p> <ul style="list-style-type: none"> • Reproducing the classic experiments by Professor Osborne Reynolds on fluid flow conditions. • Visualization of the laminar, transitional, turbulent flow and velocity profile. <p>Specification</p> <ul style="list-style-type: none"> • Visualization of laminar and turbulent flows • Determining critical reynold's number <p>Technical Data Visualization tube dia: 10mm Length: 620mm Dye Reservoir: 440ml Measuring Cylinder: 2 liter</p>	Unit	1			
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NOTE:

- **FOR LOT 1: Supply, delivery, and installation of laboratory equipment must be accompanied with an onsite training, commissioning, and testing of the equipment to be delivered.**
- **Supplier must supply, deliver, and install equipment that shall be compatible and suited with the existing Hydraulic Bench equipment at the CHE laboratory.**

(Picture of the existing equipment for reference)



2	P.R. No. 10-0705-23 COE	LOT	1
	<p style="text-align: center;">Item Description</p> <p>BENCH DIGITAL MULTIMETER</p>  <ul style="list-style-type: none"> - Real 5½ digits readings resolution (240, 000 counts) - Up to 150 rdgs/s measurement speed. - True-RMS AC Voltage and AC Current measuring. - 1 Gb Nand flash size, Mass storage configuration files and data files. - Optional Scanner for multipoint measurements (-SC part number) -with probes 	Unit	8
	<p>SOURCE METER</p>  <ul style="list-style-type: none"> - 5.5-digit, single channel low noise power source - Integrated 4-quadrant sourcing and measuring capabilities - Measurement range: ±210 V, ±1.5 A (DC) - 1 pA resolution - 4.3" TFT colour display (480x272, with LED backlight) with keypads and rotary knob - PC-based control software - Supports both conventional and default SCPI commands - Small for factor with USB2.0, LAN, GPIB and digital I/O interfaces 	Unit	1

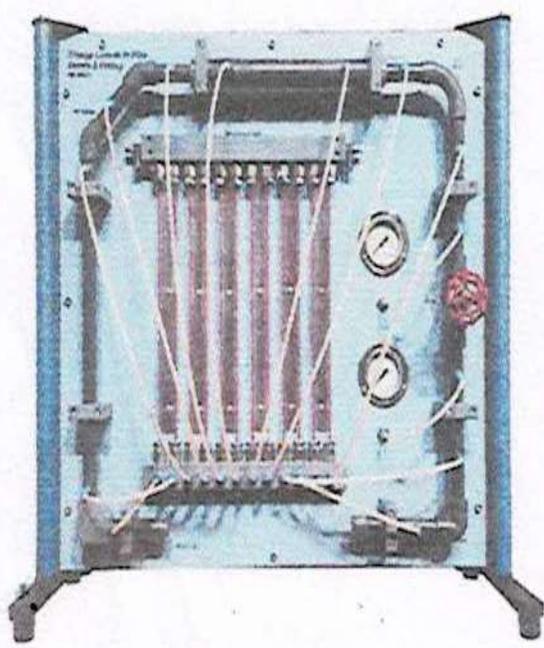
	<p>SPECTRUM ANALYZER</p>  <p>- All-Digital IF Technology. - Frequency Range from 9 kHz up to 3.2 GHz. -161 dBm/Hz Displayed Average Noise Level (Typ.) -98 dBc/Hz @10 kHz Offset Phase Noise (1 GHz, Typ.) - Total Amplitude Accuracy < 0.7 dB. - 10 Hz Minimum Resolution Bandwidth (RBW) - Standard Preamplifier. - Up to 3.2 GHz Tracking Generator Kit (Opt.) - Reflection Measurement Kit (Opt.) - Advanced Measurement Kit (Opt.) - EMI Pre-compliance Measurements Kit (Opt.) - 10.1 Inch WVGA (1024×600) Display</p>	Unit	2				
	<p>FUNCTION GENERATOR</p>  <p>- Dual-channel, with bandwidth up to 60 MHz, and amplitude up to 20 Vpp - 150 MSa/s sampling rate, 14-bit vertical resolution, and 16 kpts waveform length - Innovative EasyPulse technology, capable of generating lower-jitter Pulse waveforms, brings a wide range and extremely high precision in pulse width and rise/fall times adjustment - Special circuit for Square wave function, can generate Square waves up to 60 MHz with jitter less than 300 ps+0.05 ppm of period - Plenty of analog and digital modulation types: AM, DSB-AM, FM, PM, FSK, ASK, PSK and PWM - Sweep and Burst functions - Harmonics Generator function - Waveform Combining function - High precision Frequency Counter - Standard interfaces: USB Host, USB Device (USBTMC), LAN (VXI-11) - Optional interface: GPIB - 4.3" TFT-LCD display</p>	Unit	1				

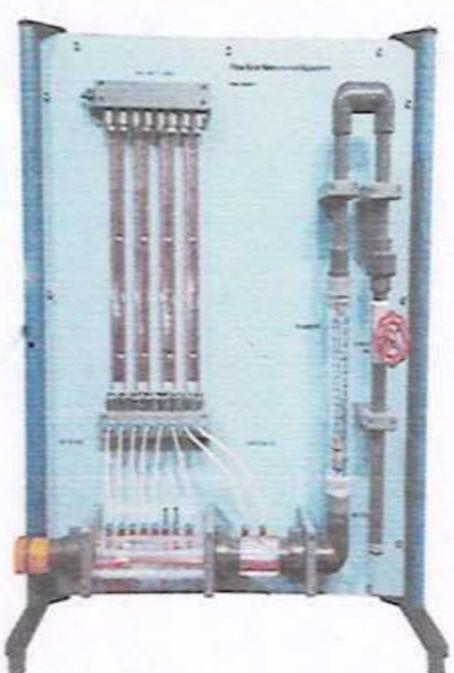
	<p>WATTMETER/ POWER LOGGER</p>  <p>Electric Energy meter, 3-phase power quality analyzer. Frequency: 45Hz-65Hz Communication: RS485 TCP/GPRS/WIFI/4G CLOUD SEVER Voltage range: 0-600VAC Current range: 0-18000A Data log: Sampling rate of 8kHz, 16GB SD Card, USB Download</p>	Unit	3				
<p>NOTE: FOR LOT 2—Supply, delivery, and installation of the laboratory equipment must be accompanied with an onsite training, commissioning, and testing of the equipment to be delivered.</p>							
3	P.R. No. 10-0706-23 COE	LOT	1				
<p align="center">Item Description</p>		Unit	Qty				
<p>HIGH LUMEN LCD PROJECTOR 1920X 1200, WIFI, HDMI, USB, VGA</p> 		Unit	2				
<p>3D PRINTER FAUSED FILAMENT FABRICATION, At least 230 x 250 x 165mm, Single Extruder Toolhead 1.75, 0.05-0.4 mm layer resolution, At least 115 deg bed temperature, At least 250 deg printing temperature, With 3D printer kit, With initial consumables, With aftersales support after warranty</p>  <p>3D PRINTER Extruder type: IDEX (Independent dual extruders) Printing Precision: at least ±0.2mm Build Volume: at least 230x250x165mm Print speed: at least 10-150mm/s Extruder temp.: at least 250°C Bed temp.: at least 115°C Nozzle diameter: 0.4mm</p> <p>Platform heating temperature: at least 120°C Filament type: PLA/ ABS/ PA/ PC/ PVA/ HIPS/ PETG/ Wood/ ASA/ PACF Connectivity: USB/Wi-Fi/Ethernet Touch Screen: at least 4.3-inch or bigger</p> <p>Inclusions:</p> <ul style="list-style-type: none"> • 3D printer kit • spools of filament (consumables) • vacuum forming • on-site training and installation • after sales support during warranty period 		Unit	1				
<p>NOTE: FOR LOT 3—Supply, delivery, and installation of the laboratory equipment must be accompanied with an onsite training, commissioning, and testing of the equipment to be delivered.</p>							

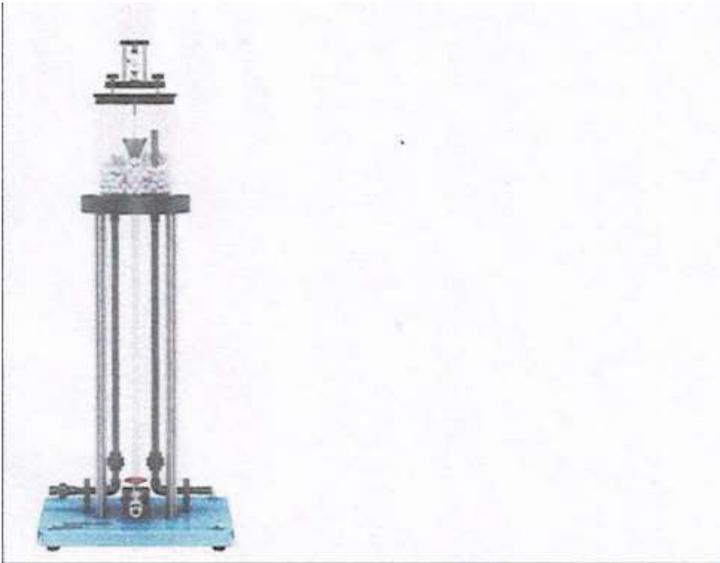
ANNEX “B”

Technical Specifications

SUPPLY, DELIVERY AND INSTALLATION OF LABORATORY SUPPLIES & EQUIPMENT			
Item Number	Description	Statement of Compliance Comply/ Not Comply	
1	P.R. No. 10-0704-23 COE (LOT 1)		
	<p style="text-align: center;">Item Description</p> <p>PIPE FRICTION APPARATUS</p>  <p>This apparatus is designed to allow the detailed study of the fluid friction head losses which occur when an incompressible fluid flows through pipes, bends, valves and pipe flow metering devices. Friction head losses in straight pipes of different sizes can be investigated over a range of Reynolds' numbers from 103 to nearly 5000, there by covering the laminar, transitional and turbulent flow regimes in smooth pipes. In addition, an artificially roughened pipe is supplied which, at the higher Reynolds' numbers, shows a clear departure from the typical smooth bore pipe characteristics. Pipe friction is one of the classic laboratory experiments and has always found a place in the practical teaching of fluid mechanics.</p> <p>Experiments: Laminar to turbulent flow regimes Energy Losses in Pipes fittings and Bends Rugosity Flow Measurement using venture meter Flow measurement using Orifice Plate Use of Pitot Static Tube Use of Manometers</p> <p>Manuals: The unit is supplied with Operating and Experiment Manuals in English giving full descriptions of the unit, summary of theory, experimental procedures and typical experimental results</p>	<p style="text-align: center;">Unit</p> <p>Unit</p>	<p style="text-align: center;">Qty</p> <p>1</p>

<p>ENERGY LOSSES IN PIPE APPARATUS</p>  <p>The experimental set-up can be used on its own or with the Hydraulic bench. A supply of water is all that is required for operation. The unit is suitable for measuring pipe friction losses for laminar and turbulent flows. The experimental set-up is clearly laid out on a training panel. For investigations on laminar flow and for turbulent flow, the supply is provided via the Basic Hydraulics Bench directly (or the lab water mains). The water flows through a pipe section; the flow is adjusted using reducing valves. The connection to the required measuring device is made via pressure tapplings.</p> <p>Experiments</p> <ul style="list-style-type: none"> • Measurement of the pressure loss for laminar flow. • Measurement of the pressure loss for turbulent flow. • Determination of the critical Reynolds' number. • Measurements using a bank Manometer. • Investigate pressure losses at segment bend and bends. • Pressure losses at contraction and enlargement. • Determination of simple valve characteristics. <p>Technical Data</p> <p>Measuring range Water Tube Manometer - upto 12 tubes Multi-tube 300mm of WC</p> <p>Pressure Gauge Gauge 2pc</p> <p>Parts Pipe diameter: 17mm (inner), outer diameter: 21mm Enlargement pipe diameter: 26mm (inner), outer diameter: 32mm Contraction diameter: 17mm 45° elbow 90° elbow Sharp bend Small bend Contraction and enlargement 12 tube manometer bank</p> <p>Specification</p> <ul style="list-style-type: none"> • Experimental set-up for the investigation of pipe friction, for use with the Basic Hydraulics Bench or lab water connection. • Bends expansion and contraction, elbows and gate valve with manometer bank on Bakelite base on aluminum structure frame. • Manometer bank for measuring pressure drop in fitting, elbows, bend etc made easily and measuring individually. 	<p>Unit</p>	<p>1</p>	
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<p>FLOW METER MEASUREMENT APPARATUS</p>  <p>The apparatus consists of three very important flow measuring devices which are Venturi meter, orifice meter and rotameter. All three flow meters are extensively used in industrial sector.</p> <p>Flowmeter Measurement Apparatus is designed to operate together with a basic hydraulic bench or any water supply. It is to familiarize the students with typical methods of flow measurement of an incompressible fluid.</p> <p>The apparatus is able to demonstrate the flow measurement comparison by using a venturi device, orifice device and rotameter (Variable Area Flowmeter). The flow comparison can be further be used to compare against the flow measurement of the hydraulics bench which can be either by gravimetric or Volumetric Method, depending on the type of hydraulics bench in use.</p> <p>Experiments</p> <ul style="list-style-type: none"> • Direct comparison of flow measurement using venturi, orifice, rotameter. • Comparison of pressure drop against each device. • Application of the Bernoulli's equation for incompressible fluids. • Determination of flow coefficient of a venturi meter & an orifice plate. • Establishment of the relationship between flow and differential pressure/fluid velocity for venturi meter and orifice plate. <p>Specification</p> <ul style="list-style-type: none"> • Primary flow measuring devices, clear plastics • Venturi meter, orifice meter, rotameter • Differential pressure measurement: Water manometer, 8 tubes <p>Technical Data</p> <p>Venturi throat diameter: 16mm Venturi inlet diameter: 26mm Orifice upstream diameter: 26mm Orifice diameter: 16mm Rotameter maximum range: 4-36 ltr/min</p>	<p>Unit</p>	<p>1</p>	
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	<p>OSBORNE REYNOLD'S APPARATUS</p>  <p>The Osborne Reynold's Apparatus has been designed for students experiment on the laminar, transition and turbulent flow. It consists of a transparent header tank and flow visualization pipe. The header tank is provided with a diffuser and stilling materials at the bottom to provide a constant head of water to be discharged through a bell mouth entry to the flow visualization pipe. Flow through this pipe is regulated using a control valve at the discharge end. The water flow rate through the pipe can be measured using the volumetric tank (or volumetric cylinder). Velocity of the water can therefore be determined to allow the calculation of the Reynold's Number. A dye injection system is installed on top of the header tank so that flow pattern in the pipe can be visualized.</p> <p>The Osborne Reynolds Demonstration apparatus is equipped with a visualization tube for students to observe the flow condition. The rocks inside the stilling tank are to calm the inflow water so that there will not be any turbulence to interfere with the experiment. The water inlet / outlet valve and dye injector are utilized to generate the required flow.</p> <p>Experiments</p> <ul style="list-style-type: none"> • Reproducing the classic experiments by Professor Osborne Reynolds on fluid flow conditions. • Visualization of the laminar, transitional, turbulent flow and velocity profile. <p>Specification</p> <ul style="list-style-type: none"> • Visualization of laminar and turbulent flows • Determining critical reynold's number <p>Technical Data Visualization tube dia: 10mm Length: 620mm Dye Reservoir: 440ml Measuring Cylinder: 2 liter</p>	Unit	1	
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NOTE:

- **FOR LOT 1: Supply, delivery, and installation of laboratory equipment must be accompanied with an onsite training, commissioning, and testing of the equipment to be delivered.**

Supplier must supply, deliver, and install equipment that shall be compatible and suited with the existing Hydraulic Bench equipment at the CHE laboratory.

(Picture of the existing equipment for reference)



P.R. No. 10-0705-23 COE			
	Item Description	Unit	Qty
	<p>BENCH DIGITAL MULTIMETER</p>  <ul style="list-style-type: none"> - Real 5½ digits readings resolution (240, 000 counts) - Up to 150 rdgs/s measurement speed. - True-RMS AC Voltage and AC Current measuring. - 1 Gb Nand flash size, Mass storage configuration files and data files. - Optional Scanner for multipoint measurements (-SC part number) -with probes 	Unit	8
2	<p>SOURCE METER</p>  <ul style="list-style-type: none"> - 5.5-digit, single channel low noise power source - Integrated 4-quadrant sourcing and measuring capabilities - Measurement range: ±210 V, ±1.5 A (DC) - 1 pA resolution - 4.3" TFT colour display (480x272, with LED backlight) with keypads and rotary knob - PC-based control software - Supports both conventional and default SCPI commands - Small for factor with USB2.0, LAN, GPIB and digital I/O interfaces 	Unit	1

<p>SPECTRUM ANALYZER</p>  <ul style="list-style-type: none"> - All-Digital IF Technology. - Frequency Range from 9 kHz up to 3.2 GHz. -161 dBm/Hz Displayed Average Noise Level (Typ.) -98 dBc/Hz @10 kHz Offset Phase Noise (1 GHz, Typ.) - Total Amplitude Accuracy < 0.7 dB. - 10 Hz Minimum Resolution Bandwidth (RBW) - Standard Preamplifier. - Up to 3.2 GHz Tracking Generator Kit (Opt.) - Reflection Measurement Kit (Opt.) - Advanced Measurement Kit (Opt.) - EMI Pre-compliance Measurements Kit (Opt.) - 10.1 Inch WVGA (1024×600) Display 	Unit	2	
<p>FUNCTION GENERATOR</p>  <ul style="list-style-type: none"> - Dual-channel, with bandwidth up to 60 MHz, and amplitude up to 20 Vpp - 150 MSa/s sampling rate, 14-bit vertical resolution, and 16 kpts waveform length - Innovative EasyPulse technology, capable of generating lower-jitter Pulse waveforms, brings a wide range and extremely high precision in pulse width and rise/fall times adjustment - Special circuit for Square wave function, can generate Square waves up to 60 MHz with jitter less than 300 ps+0.05 ppm of period - Plenty of analog and digital modulation types: AM, DSB-AM, FM, PM, FSK, ASK, PSK and PWM - Sweep and Burst functions - Harmonics Generator function - Waveform Combining function - High precision Frequency Counter - Standard interfaces: USB Host, USB Device (USBTMC), LAN (VXI-11) - Optional interface: GPIB - 4.3" TFT-LCD display 	Unit	1	

	<p>WATTMETER/ POWER LOGGER</p>  <p>Electric Energy meter, 3-phase power quality analyzer. Frequency: 45Hz-65Hz Communication: RS485 TCP/GPRS/WIFI/4G CLOUD SEVER Voltage range: 0-600VAC Current range: 0-18000A Data log: Sampling rate of 8kHz, 16GB SD Card, USB Download</p>	Unit	3	
<p>NOTE: FOR LOT 2—Supply, delivery, and installation of the laboratory equipment must be accompanied with an onsite training, commissioning, and testing of the equipment to be delivered.</p>				
<p>P.R. No. 10-0706-23 COE</p>				
3	<p>Item Description</p> <p>HIGH LUMEN LCD PROJECTOR 1920X 1200, WIFI, HDMI, USB, VGA</p>  <p>3D PRINTER FAUSED FILAMENT FABRICATION, At least 230 x 250 x 165mm, Single Extruder Toolhead 1.75, 0.05-0.4 mm layer resolution, At least 115 deg bed temperature, At least 250 deg printing temperature, With 3D printer kit, With initial consumables, With aftersales support after warranty</p>  <p>3D PRINTER Extruder type: IDEX (Independent dual extruders) Printing Precision: at least ±0.2mm Build Volume: at least 230x250x165mm Print speed: at least 10-150mm/s Extruder temp.: at least 250°C Bed temp.: at least 115°C Nozzle diameter: 0.4mm Platform heating temperature: at least 120°C Filament type: PLA/ ABS/ PA/ PC/ PVA/ HIPS/ PETG/ Wood/ ASA/ PACF Connectivity: USB/Wi-Fi/Ethernet Touch Screen: at least 4.3-inch or bigger Inclusions: • 3D printer kit • spools of filament (consumables) • vacuum forming • on-site training and installation • after sales support during warranty period</p>	Unit	2	
<p>NOTE: FOR LOT 3—Supply, delivery, and installation of the laboratory equipment must be accompanied with an onsite training, commissioning, and testing of the equipment to be delivered.</p>				
		Unit	1	

ANNEX “C”

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

ITEM NO.	DOCUMENTS	PRESCRIBE D FORMS
<u>Class “A” Documents</u>		
Legal Documents		
1	Valid PhilGEPS Registration Certificate (PLATINUM MEMBERSHIP) (all pages, including its Annexes); OR	-
	Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document; AND	-
	Mayor’s or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas; AND	-
	Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).	-
Technical Documents		
2	Statement of the bidder of all its ongoing government and private contracts , including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid. The statement shall include for each contract the following: a. name of contract; b. date and period of contract; c. amount of contract and value of outstanding contracts; d. date of delivery/ performance; e. end-user's acceptance or official receipts issued for the contract (if completed); f. copy of the contract AND	ANNEX A
3	Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid , except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; AND	ANNEX B

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4	Original copy of Bid Security.	ANNEX C								
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 60%;">FORMS OF BID SECURITY</th> <th style="width: 40%;">AMOUNT OF BID SECURITY (EQUAL TO PERCENTAGE OF THE ABC)</th> </tr> </thead> <tbody> <tr> <td>• Bid Securing Declaration; OR</td> <td align="center">NOTARIZED</td> </tr> <tr> <td>• Cash, Cashier's/ manager's check issued by a Universal or Commercial Bank; OR</td> <td align="center">Two Percent (2%)</td> </tr> <tr> <td>• Surety Bond (If security bond, attach the original copy of the official receipt of premium payment and certification issued by the Insurance Commission)</td> <td align="center">Five Percent (5%)</td> </tr> </tbody> </table>		FORMS OF BID SECURITY	AMOUNT OF BID SECURITY (EQUAL TO PERCENTAGE OF THE ABC)	• Bid Securing Declaration; OR	NOTARIZED	• Cash, Cashier's/ manager's check issued by a Universal or Commercial Bank; OR	Two Percent (2%)	• Surety Bond (If security bond, attach the original copy of the official receipt of premium payment and certification issued by the Insurance Commission)	Five Percent (5%)
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	• Bid Securing Declaration; OR		NOTARIZED							
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• Surety Bond (If security bond, attach the original copy of the official receipt of premium payment and certification issued by the Insurance Commission)	Five Percent (5%)									
5	Conformity with the Schedule of Requirements; <u>and</u>	Section VI of the PBD								
6	<p>Conformity with the Technical Specifications, which shall include:</p> <p>a) production/delivery schedule;</p> <p>b) manpower requirements;</p> <p>c) after-sales/parts, if applicable;</p> <p>d) Certification from the Manufacturer; and,</p> <p>e) Calibration requirements.</p> <p><u>AND</u></p>	Section VII of the PBD								
7	Original duly signed Omnibus Sworn Statement (OSS)	ANNEX D								
	<p>It should be supported with Original Notarized Special Power of Attorney if the signatory is other than the owner for sole proprietorship, or of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder. <u>OR</u></p> <p>Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative in accordance with the forms provided in the bidding documents.</p>									
Financial Documents										
8	The Bidder's audited financial statements , showing, among others, the Supplier's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission. <u>and</u>	-								
9	The bidder's computation of Net Financial Contracting Capacity (NFCC) ; <u>or</u> A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation	-								

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Class “B” Documents		
10	If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence; or duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.	ANNEX E
Other documentary requirements under RA No. 9184 (as applicable)		
11	<i>[For foreign bidders claiming by reason of their country’s extension of reciprocal rights to Filipinos]</i> Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product	-
12	Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.	-

II. FINANCIAL COMPONENT ENVELOPE

ITEM NO.	DOCUMENTS	PRESCRIBE D FORMS
1	Original of duly signed and accomplished Financial Bid Form.; and	ANNEX F
2	Original of duly signed and accomplished Price Schedule(s).	ANNEX G