



## SUPPLEMENTAL/BID BULLETIN NO. 1

**Date:** July 23, 2025  
**Title:** IB-2025-07-12 SUPPLY, DELIVERY, & INSTALLATION OF LABORATORY EQUIPMENT FOR COPC REQUIREMENTS OF EVSU-COE MAIN CAMPUS  
**Reference No.:** 12200983

This bulletin is being issued to revise/clarify certain portions of the bidding documents. This shall form an integral part of the bidding document for the above-mentioned procurement project.

REFERENCE/QUERY	AMMENDMENTS/ CLARIFICATIONS
May we request an extension of the delivery period from 60 calendar days to 90 calendar days?	We are anticipating the issuance of our Certificate of Project Completion (COPC) before September; hence, we are retaining the original delivery period of sixty (60) calendar days as stated in the bidding documents. However, the supplier may request an extension of the delivery period for valid and justifiable reasons, provided that such request is submitted in writing and is subject to the approval of the procuring entity, provided that such extension shall not exceed the original delivery period as stated in the contract.
<b>Lot 1 (SOIL TESTING AND CLASSIFICATION EQUIPMENT)</b>	
1. May the quantities still be adjusted, considering that the Approved Budget for the Contract (ABC) appears insufficient for the specified quantities?	No adjustments shall be made to the specified quantities. The procurement shall proceed based on the quantities and ABC stated in the bidding documents.
<b>Lot 2 (GLASSWARE SUPPLIES)</b>	
1. Is a calibration certificate required for the glassware, given that obtaining one would entail additional costs?	Yes, a calibration certificate is required.
2. Would a manufacturer's calibration certificate suffice, or is calibration by a local third-party entity such as DOST mandatory?	A manufacturer's calibration certificate is sufficient. Third-party calibration is not required, provided that the manufacturer's certificate is current, valid, and not expired or nearing expiration at the time of delivery.
3. Is the Calibration Certificate required to be submitted during the bidding process, or is it acceptable upon delivery?	The Calibration Certificate shall be submitted upon delivery of the items.
<b>Lot 3 (CHEMICAL LABORATORY INSTRUMENTS &amp; APPARATUS)</b>	
1. Item 1 – Analytical Balance:  a) Could the maximum range be clarified, as it is listed at 500g, while most models typically support only up to 320g?  b) What is the required readability for the balance—0.001g or 0.0001g—considering that 0.0001g readability generally comes with a lower capacity?	a) Analytical balances with a maximum capacity of 500 grams are commercially available. Therefore, the specified maximum range of 500g remains unchanged.  b) The required readability is 0.001g (1 mg). Balances with this level of precision and a 500g capacity are available in the market; thus, the original specifications stand.



**BIDS AND AWARDS COMMITTEE**

REFERENCE/QUERY	AMMENDMENTS/ CLARIFICATIONS
2. Item 2 – Manometer:  a) Is a digital type manometer required?	a) A manual type manometer is required, as it is intended for educational purposes.
3. Item 4 – Digital Temperature Control Heating Plate with Magnetic Stirrer:  a) May the specific plate dimensions and weight specifications be removed to avoid potential brand preference? Would it be acceptable to specify a 1000-watt heater with a temperature range of 50–500°C instead?  b) Are plate sizes of 7x7 inches or 10x10 inches with a maximum temperature of 350°C acceptable?  c) Is the inclusion of an external temperature sensor still required?	a) There are no restrictions on power output (e.g., 1000 watts) or the weight of the equipment, provided that the temperature range is not lower than 350°C.  b) As discussed during the pre-bid conference, the equipment is intended to accommodate multiple laboratory wares simultaneously. Therefore, the minimum acceptable plate dimension is 10" x 10".  c) Yes, the external temperature sensor is required, as it provides real-time monitoring of the actual temperature of the substance under observation.
4. Item 5 – Rotary Evaporator:  a) Is a manual or motorized lift mechanism required for the rotary evaporator?  b) Would a 4-liter capacity be acceptable in place of the specified 4.3-liter capacity?	a) The rotary evaporator must have a motorized rotation mechanism. As for the lift mechanism, a motorized lift is much preferred; however, a manual lift mechanism is also acceptable.  b) Yes, a 4-liter capacity is acceptable. However, offers with a larger capacity are highly appreciated.
<b>Lot 4 (UNMANNED SURVEY VESSEL (USV) FOR HYDROGRAPHIC SURVEYING)</b>	
1. Considering our intention to bid for Lot No. 4 with an Approved Budget for the Contract (ABC) of PHP 3,855,466.00, may we confirm that the bidding document fee is Php5,000.00?	Yes, if you are participating only in Lot 4, the cost of the bidding documents is Php5,000.00, in accordance with the standard schedule of fees based on the ABC as prescribed under the 2016 Revised IRR of RA 9184.
2. May we confirm if the required components for the USV include the vessel, RTK, echo sounder, and ADCP?	Yes, the required components include the vessel, RTK, echo sounder, and ADCP.
3. Would it be possible to remove the reference to "SL20" as it pertains to a specific brand?	Yes, the reference to "SL20" will be omitted to ensure brand neutrality. Please refer to Annex "A" for the revised Technical Specifications.
4. The specifications mention a specific model of echo sounder. We respectfully request that the model number be removed and that the required specifications be indicated in ranges instead, to allow for equitable participation. I have attached a copy of the specifications for the Unmanned	Yes, the specific model number will be removed, and the required specifications will be indicated in general performance ranges. Please refer to Annex "A" for the revised Technical Specifications.





BIDS AND AWARDS COMMITTEE

REFERENCE/QUERY	AMMENDMENTS/ CLARIFICATIONS
Survey Vessel (USV) we intend to offer for the bidding, which you may consider as reference.	
5. For software compatibility, we request that the names of the three listed software programs be removed. This will allow us to propose compatible software that meets the same functional requirements.	Yes, the specific names of the software programs will be removed, provided that the proposed software meets the required functionalities. Please refer to Annex “A” for the revised Technical Specifications.
6. Regarding the RTK receiver, we kindly request that the number of required channels be reduced to 1400, in consideration of available configurations.	No. The procuring entity prefers to acquire future-proof RTK receivers with a minimum of 1500 channels to ensure compatibility with evolving GNSS technologies.
7. The specific names for hydrographic software. We respectfully request that these be removed so we can propose a software with similar capabilities.	Yes, the specific hydrographic software names will be removed, provided that the proposed software offers equivalent capabilities and functionality. Please refer to Annex “A” for the revised Technical Specifications.

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:



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Noted:

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Technical Specifications








IB-2025-07-12 SUPPLY, DELIVERY, & INSTALLATION OF LABORATORY EQUIPMENT FOR COPC REQUIREMENTS OF EVSU-COE MAIN CAMPUS						
Lot No.	Description					Statement of Compliance Comply/ Not Comply
1	SOIL TESTING AND CLASSIFICATION EQUIPMENT					
	PR No.	Item No.	Description	Qty	Unit	
	05-0548-25 COE-CE	1	<p><b>IN-PLACE SOIL DENSITY ACCESSORY KIT</b></p> <p>In-Place Soil Density Accessory Kit has all items necessary for performing density and unit weight soil field tests. The kit can be used with the Balloon Density Apparatus or the 6.5in (165mm) Sand Cone Density Apparatus. The kit includes poly sample bags (pkg. of 100), sample bag ties (pkg. of 100), pocket dial thermometer with a temperature range of 25°—125°F, fine bristle cleaning brush, chisel, spoon, and rubber mallet.</p> <p>Included Items: In-Place Density Accessory Kit (100) Poly Sample bags (100) Sample bag ties Dial thermometer Fine bristle cleaning brush</p> 	4	set	
	05-0548-25 COE-CE	2	<p><b>SAND CONE DENSITY APPARATUS</b></p> <p>Sand Cone Density Apparatus (6-1/2in) is a 1gal (3.8L) threaded plastic jar with detachable metal double cone fitting. The cone is threaded on one end, flanged to 6-1/2in (165mm) on the other, with a cylindrical valve of 1/2in (12.7mm) Dia. orifice between ends. Valve has stops to prevent rotating past completely open or closed positions. The sand cone density test is an accepted and inexpensive method of determining the in-place density of soils. Effective in soils with particle sizes up to 2in (51mm), using test hole volumes of approximately 0.1ft³ (2.8L).</p> <p>Features: Detachable cone fitting 1gal capacity Valve Stop prevents rotating past the open or closed position</p> <p>Included Items: Sand Cone Density Apparatus</p> 	4	set	
	05-0548-25 COE-CE	3	<p><b>MOTORIZED ATTERBERG LIQUID LIMITS MACHINE W/ COUNTER</b></p> <p>Motorized Atterberg Liquid Limits Machine w/ Counter (230V / 50Hz) Liquid Limit is the water content at which soil changes from a liquid to a plastic state, defined as a point where two halves of a soil sample flow together when jarred 25 times in a specified manner using a Liquid Limit machine. The model offers motorized or hand-crank-operated machines with either an automatic impact counter or a cost-effective hand-crank model without a counter. All models consist of a brass cup and carriage designed to control drop to exactly 1cm onto a hard rubber base. The height of drop is adjusted by a nut at the rear of the cup carriage using the gauge at one end of the included plastic Casagrande Grooving Tool, model SAA-10P. The cup</p>	4	set	

		<p>attaches to the carriage by a pin, for easy removal when cleaning or inspecting. All mechanical parts are machined from solid brass and rubber feet isolate the base from the work surface.</p> <p>Motorized Liquid Limit Machine (230V/50Hz), with counter, is most accurate with the use of a specially geared motor assuring proper operating speed of 1.9—2.1 drops per second. An on-off switch is provided.</p> <p>Features:</p> <p>Variety of motorized or hand-crank options to fit your application and budget</p> <p>Complete control of drop to 1cm</p> <p>Easily removable cup for cleaning or inspection</p> <p>Included Items:</p> <p>Motorized Liquid Limit Machine, 115V/60Hz or 230V/50Hz, or</p> <p>Hand-Operated Liquid Limit Machine, with or without Counter</p> <p>Plastic Casagrande Grooving Tools (Package of 10)</p>			
05-0548-25 COE-CE	4	<p><b>LIQUID LIMIT / PLASTIC LIMIT TEST ACCESSORY SET</b></p> <p>Liquid Limit / Plastic Limit Test Accessory Set contains the products necessary to perform Atterberg liquid and plastic limit tests in accordance with ASTM D4318. Liquid Limit Machines are sold separately.</p> <p>The Accessory Set comes with one 250ml Porcelain Evaporating Dish, 4.7x1.7in (120x42mm); one Glass Plate, 12x3/8in (305x10mm) square with seamed edges; 24 1.5oz Aluminum Sample Containers 2x0.9in (51x23mm) DxH with snug-fitting lids; one 5qt Stainless Steel Pan; one 4x0.75in (102x19mm) Spatula with wooden handle and stainless-steel blade; and one 250ml Wash Bottle.</p> <p>Features:</p> <p>Set features products needed for Atterberg Liquid and Plastic Limits tests; Components are available individually for replacement</p> <p>Included Items:</p> <p>Porcelain Evaporating Dish, 250ml</p> <p>Glass Plate, 12in square with seamed edges</p> <p>(24) Aluminum Sample Containers, 1.5oz with lids</p> <p>Stainless Steel Pan, 5qt</p> <p>4x0.75in Spatula</p> <p>Wash Bottle, 250ml</p>	4	sets	
05-0548-25 COE-CE	5	<p><b>WAX MELTING POT</b></p> <p>Wax Melting Pot for use for the Shrinkage Limit Test Melts Microcrystalline Wax used in determining the shrinkage limit of cohesive soils. The thermostatically-controlled melting pot with lids holds 2qt (1.9L) of microcrystalline wax.</p> <p>Features:</p> <p>2qt (1.9L) capacity</p> <p>50°—250°F (10°—120°C) operating temperature</p> <p>Included Items:</p> <p>Wax Melting Pot for Shrinkage Limit Tests (110-120V/50-60Hz or 220-240V/50-60Hz)</p>	4	sets	
05-0548-	6	<p><b>THE SHRINKAGE LIMIT TEST</b></p>	4	sets	







25 COE-CE		<p>The shrinkage Limit Test is one of the Atterberg Limits methods of defining characteristics of cohesive soils. The shrinkage limit of cohesive soils is defined as the water content at which further loss of moisture will not cause a decrease in volume. The shrinkage limit apparatus includes components necessary to run the test.</p> <p>ASTM recommends this new method as an alternative to the original D427 test method, which was withdrawn due to its use of mercury for volume determinations. This procedure uses similar apparatus for the preparation of a soil pat but requires coating the pat in melted wax. Prior to immersion in water for mass determination.</p> <p>A soil specimen with moisture content above the liquid limit is placed in the shrinkage dish and struck off with the straightedge. The soil pat is then oven-dried. After coating in melted wax, the volume of the soil pat is computed by weighing in water and noting the difference from its weight in the air.</p> <p>Soil samples for shrinkage limit tests are usually taken from a larger sample prepared for liquid and plastic limit tests. A soil specimen with moisture content above the liquid limit is placed in the shrinkage dish and struck off with the straightedge. The sample is then oven-dried. After coating in wax, the volume of the soil pat is computed by weighing in water and noting the difference from its weight in the air.</p> <p>Features:</p> <p>Determines Atterberg shrinkage limits of cohesive soils</p> <p>Requires immersion of soil pat in melted wax</p> <p>Aligns with ASTM D4943</p> <p>Included Items:</p> <p>Shrinkage Limit Set</p> <p>15ml Monel Shrinkage Dish</p> <p>Spatula with 4x0.75in Blade</p> <p>Glass Calibration Plate</p> <p>Fine Thread to suspend the soil pat</p> <p>Tube of Petroleum Jelly for coating the shrinkage dish</p>			
05-0548-25 COE-CE	7	<p><b>MICROCRYSTALLINE WAX FOR SHRINKAGE LIMIT TESTS</b></p> <p>Microcrystalline Wax for Shrinkage Limit Tests is used with the Shrinkage Limit Set in determining the shrinkage limit of cohesive soils. Microcrystalline Wax is melted in the Wax Melting Pot for coating oven-dried shrinkage limit soil pats before immersing in water for mass determination.</p> <p>Features:</p> <p>Easily coats shrinkage limit soil pat to prepare for immersion weighing</p> <p>Sold as a 5lb (2.3kg) block</p> <p>Included Items:</p> <p>Microcrystalline Wax for Shrinkage Limit Tests</p>	4	set	
05-0548-25 COE-CE	8	<p><b>SOIL GRINDER</b></p> <p>Soil Grinder quickly prepares samples for Atterberg Limits or grain size testing and other standard lab tests. It is an efficient method for reducing agglomerations of caked soil to individual grains, and much less labor-intensive than a manual mortar and pestle operation. The grinders preserve true grain size for accurate and repeatable test results. The</p>	4	sets	






		<p>hopper has a 1pint (0.473L) capacity and features a manually operated gate to control the feed rate to the grinding chamber. The operation is simple: just load the hopper, start the grinder, and use the gate to control the material feed. A No. 10 (2.0mm) perforated stainless steel plate is included to retain larger particles. Most soil types are processed completely in less than 30 seconds per pint. Rugged stainless steel contact parts reduce sample contamination. The reliable direct-drive motor and the grinding unit are mounted on a sturdy painted steel tripod stand. An in-line switch controls motor operation. A stainless-steel lid covers the hopper during operation. Available in models that operate on 220V/50Hz power supplies.</p> <p>Features:</p> <p>Fast, efficient sample preparation of soils</p> <p>A manually-operated gate controls the feed rate</p> <p>Processes most soil types in less than 30 seconds</p> <p>Included Items:</p> <p>Soil Grinder (220V/50Hz)</p>			
05-0548-25 COE-CE	9	<p><b>3OZ. TINNED-METAL SAMPLE CONTAINER (PACKAGE OF 12)</b>    FEATURES: TINNED-metal construction</p> <p>88ml (3oz.) capacity</p> <p>Lids help retain soil moisture</p> <p>Included Items:</p> <p>3oz. Tinned-Metal Sample Container</p>		5	sets
05-0548-25 COE-CE	10	<p><b>4OZ. TINNED-METAL SAMPLE CONTAINER (PACKAGE OF 12)</b></p> <p>Features:</p> <p>Lids are included</p> <p>Protect from moisture and other changes</p> <p>Included Items:</p> <p>4oz Tinned-Metal Sample Containers</p>		5	sets
05-0548-25 COE-CE	11	<p><b>6OZ. TINNED-METAL SAMPLE CONTAINER (PACKAGE OF 12)</b></p> <p>Features:</p> <p>Tinned-metal construction</p> <p>177m (6oz) capacity</p> <p>Included Items:</p> <p>6oz. Tinned-Metal Sample Container (package of 12)</p>		5	sets
05-0548-25 COE-CE	12	<p><b>8OZ. TINNED-METAL SAMPLE CONTAINER (PACKAGE OF 12)</b></p> <p>Features:</p> <p>Protects against moisture change</p> <p>Lids are included</p> <p>Included Items:</p> <p>8oz Tinned-Metal Sample Containers</p>		5	sets
05-0548-25 COE-CE	13	<p><b>16OZ. TINNED-METAL SAMPLE CONTAINER (PACKAGE OF 12)</b></p> <p>Features:</p> <p>Tight lid protects against moisture changes</p> <p>Included Items:</p> <p>16oz Tinned-Metal Sample Containers Lids</p>		5	sets


05-0548-25 COE-CE	14	<b>3IN STANDARD SOIL AUGER (STAINLESS STEEL)</b> Features: Constructed of Carbon Steel or Stainless Steel Quick-connect fittings Open bit design Included Items: Standard Auger, Stainless Steel		5	set
05-0548-25 COE-CE	15	<b>4IN STANDARD SOIL AUGER (STAINLESS STEEL)</b> Features: Constructed of Carbon Steel or Stainless Steel Quick-connect fittings Open bit design Included Items: Standard Auger, Stainless Steel		5	set
05-0548-25 COE-CE	16	<b>STAINLESS STEEL SOIL SAMPLER</b> T-Handle Features: Easy, comfortable grip Included Items: T-Handle, carbon steel or stainless steel		5	set
05-0548-25 COE-CE	17	<b>3FT STAINLESS STEEL SOIL SAMPLER EXTENSION</b> Features: High-strength stainless steel tubing Quick connect fittings Marked in permanent 6in (152mm) increments Included Items: Stainless Steel Soil Sampler Extension, 3ft		5	set
05-0548-25 COE-CE	18	<b>STAINLESS STEEL QUICK-CONNECT PIN</b> These 0.25x1.25in (6.35x31.75mm) WxD connectors are made of carbon steel or stainless steel. Features: Easily secures auger to extension Included Items: Quick Connect Pin, Stainless Steel		5	set
05-0548-25 COE-CE	19	<b>QUICK-CONNECT AUGER ADAPTER</b> allow Standard Augers to be attached to older extension rods that have 5/8in-11 NC threaded connections. The stainless-steel adapter includes a threaded connecting unit, nut, and locking pin. Features: Retrofits Quick-Connect Augers for use on older extensions Stainless steel construction Included Items: Quick-Connect Auger Adapter		5	set
05-0548-25 COE-CE	20	<b>ONE-PIECE SOIL SAMPLER,</b> 36in Long with an open-tube design including a T-handle and replaceable hardened tips. The tube is marked to indicate a sampling depth of 6in (152.4mm). Made of high-grade nickel-plated steel. One-Piece Soil Sampler is 36in (914mm) long, takes 9 x 0.75in (229 x 19mm) core sample, and has a built-in footstep to assist with insertion into the soil Features: High-grade nickel-plated steel construction T-Handle Built-in footstep Included Items: Soil Sampler, 36in Long		5	set

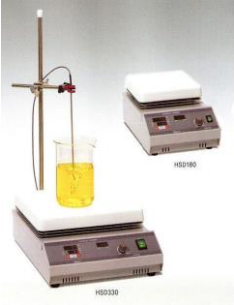




<div>05-0548-25 COE-CE</div>	<div>21</div>	<p><b>SOIL CLASSIFICATION SET</b> provides a full range of gauges, charts, and instruments for field evaluation and classification of various soil characteristics. The convenient carrying case contains tools for visual classification, particle size estimation, and for estimating shear strength, density, and bearing capacity.</p> <p>Features: Contains products used for a range of field soil classifications and tests Included Items: Pocket Penetrometer Adapter Foot for Penetrometer Pocket Shear Vane Set Soil Density Volumeter Sand Gauge Munsell Soil Color Chart Set 1 each of #4, #10, #40, #100 and #200 3in (76mm) diameter all-stainless-steel sieves Sieve Pan and Cover Sturdy Plastic Carrying Case</p> 	<div>4</div>	<div>sets</div>	
<div>05-0548-25 COE-CE</div>	<div>22</div>	<p><b>AQUA-CHECK MOISTURE TESTER</b> is made in the USA and offers an affordable choice for rapid, accurate, and reliable moisture tests on sand, aggregates, ores, coal, soils, and other materials with a particle size up to 20mm. Samples can be quickly tested on-site, eliminating delay and risk of moisture loss during transport. Portable units are easy to use and meet ASTM, AASHTO, and Florida DOT standards.</p> <p>A pre-weighed 20g sample is placed in the test chamber, along with a measured quantity of calcium carbide reagent. When the cell is sealed and agitated for one to three minutes, free moisture in the test sample reacts with the reagent to produce acetylene gas. The integral pressure gauge registers 0—20% moisture by weight in 0.2% graduations. Moisture range can be doubled by halving the pre-weighed sample weight.</p> <p>The Aqua-Check has a rugged, die-cast aluminum body with a tough, wear-resistant coating and includes a 0—20% pressure gauge, with a certificate of calibration. Models are also supplied with an electronic digital balance, two 1.25in (32mm) dia. steel pulverizing balls, reagent measuring scoop, brush, and instructions in a heavy-duty, waterproof plastic case.</p> <p>Features: The affordable, accurate choice for rapid moisture tests on sand, aggregates, ores, coal, soils, and materials up to 20mm Tests are complete in minutes; no delays waiting for results No moisture loss during transport ASTM, AASHTO, and Florida DOT-compliant Parts and accessories are compatible with Speedy 2000 Moisture Testers Included Items: Aqua-Check Moisture Tester 0—20 x 0.2% pressure gauge</p> 	<div>2</div>	<div>sets</div>	

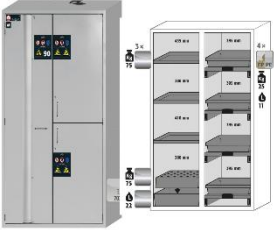
			Certificate of calibration Electronic digital balance Two 1.25in (35mm) dia. steel pulverizing balls Reagent measuring scoop, brush, and instructions Heavy-duty waterproof plastic case			
	05-0548-25 COE-CE	23	<b>BALLOON DENSITY APPARATUS (1/20FT³)</b> The model has 1/20ft³ (1,600ml) capacity and is used for soils with 1/2in (13mm) maximum particle size. Each apparatus consists of a graduated cylinder (0.00025ft³ and 7cm³ graduations), base plate, pressure/vacuum pump assembly with quick-coupler, ten balloons, and an integral gauge for controlling pressure during calibration and testing. Aqua-Check Moisture Tester for moisture determinations and In-Place Density Accessory Kit are recommended optional accessories. Note: this method is not suitable for very soft, easily deformed soils or in a hole that will not maintain a constant volume. Features: Durable, clear plastic cylinder makes double-graduations easy to read Comes with all components needed to measure the in-place density of soil 1/20ft³ HM-66 model is used for soils with a particle size up to 1/2in (13mm) 1/13ft³ HM-67 model is for soils with a particle size up to 1in (25mm) Included Items: Balloon Density Apparatus Double-graduated cylinder Baseplate Pressure/vacuum pump assembly with quick-coupler Pressure gauge Rubber balloons (pkg. of 10) 	4	set	
2	<b>GLASSWARE SUPPLIES</b>					
	PR No.	Item No.	Description	Qty	Unit	
	05-0548-25 COE-CE	1	<b>100ML VOLUMETRIC LAB FLASK</b> made of borosilicate glass featuring a heavy-beaded machine-blown body, and a thick-walled neck. They are calibrated to contain the indicated volume at 68°F (20°C). Volumetric flasks are used for general lab applications meeting ASTM E288 and E694. Flasks are in accordance with test methods for specific gravity tests such as ASTM D854 and AASHTO T 100. Flasks have a permanent graduation line and a large white block for labeling. Each flask is supplied with a plastic snap cap. Features: Includes fitted snap cap Optimal for specific gravity testing Compliant with ASTM E288 and E694 Included Items: Volumetric Lab Flask (100 mL) Plastic Snap Cap 	5	pc	

		<div>2</div> <div><b>250ML VOLUMETRIC LAB FLASK</b> made of borosilicate glass featuring a heavy-beaded machine-blown body, and a thick-walled neck. They are calibrated to contain the indicated volume at 68°F (20°C). Features: Includes fitted snap cap Optimal for specific gravity testing Compliant with ASTM E288 and E694 Included Items: Volumetric Lab Flask (250 mL) Plastic Snap Cap</div> <div></div>	5	pc	
		<div>3</div> <div><b>500ML VOLUMETRIC LAB FLASK</b> made of borosilicate glass featuring a heavy-beaded machine-blown body, and a thick-walled neck. They are calibrated to contain the indicated volume at 68°F (20°C). Features: Includes fitted snap cap Optimal for specific gravity testing Compliant with ASTM E288 and E694 Included Items: Volumetric Lab Flask (500 mL) Plastic Snap Cap</div> <div></div>	5	pc	
		<div>4</div> <div><b>1000ML VOLUMETRIC LAB FLASK</b> made of borosilicate glass featuring a heavy-beaded machine-blown body, and a thick-walled neck. They are calibrated to contain the indicated volume at 68°F (20°C). Features: Includes fitted snap cap Optimal for specific gravity testing Compliant with ASTM E288 and E694 Included Items: Volumetric Lab Flask (1000 mL) Plastic Snap Cap</div> <div></div>	5	pc	
		<div>5</div> <div><b>100ML GLASS GRADUATED CYLINDER</b> made of durable borosilicate glass with etched single scale graduations every 5ml numbered top to bottom. The cylinder has a large base for stability and a pour spout for ease of use. Sold in packages of one. Features: Pour spout Etched numbered graduations Included Items: 100ml Glass Graduated Cylinder</div> <div></div>	5	pc	
		<div>6</div> <div><b>250ML GLASS GRADUATED CYLINDER</b> made of durable borosilicate glass with etched single scale graduations every 5ml numbered top to bottom. The cylinder has a large base for stability and a pour spout for ease of use. Sold in packages of one. Features: Pour spout Etched numbered graduations Included Items: 250ml Glass Graduated Cylinder</div> <div></div>	5	pc	

		7	<b>500ML GLASS GRADUATED CYLINDER</b> made of durable borosilicate glass with etched single scale graduations every 5ml numbered top to bottom. The cylinder has a large base for stability and a pour spout for ease of use. Sold in packages of one. Features: Pour spout Etched numbered graduations Included Items: 500ml Glass Graduated Cylinder	5	pc	
		8	<b>1000ML GLASS GRADUATED CYLINDER</b> made of durable borosilicate glass with etched single scale graduations every 5ml numbered top to bottom. The cylinder has a large base for stability and a pour spout for ease of use. Sold in packages of one Features: Pour spout Etched numbered graduations Included Items: 1000ml Glass Graduated Cylinder	5	pc	
3	<b>CHEMICAL LABORATORY INSTRUMENTS &amp; APPARATUS</b>					
	PR No.	Item No.	Description	Qty	Unit	
	05-0548-25 COE-CE	1	<b>ANALYTICAL BALANCE</b> Specifications: The readability is 0.001g with maximum range of up to 500g and the error range is ± 0.003g. Material is glass, acrylonitrile butadiene styrene with ABS light base and reinforced body. Air guard: 5 pieces of anti-static coated glass easily disassembled without any tools. Fast-Settling Time. Built-in bubble-level and four feet - convenient for the operator to level the scale. Item weight is approx. 4.85 pounds.	2	set	
		2	<b>MANOMETER (MANUAL)</b> Specifications: U-Tube manometer is used for precision measurement of pressure, vacuum, differential pressure, and flow measurement in plants & labs where certain accuracy is required. Material of Construction: Metering Tube: Special uniform bare thick-walled borosilicate glass tube Packing: Teflon / Neoprene Casing: M.S. /Aluminum Casing from three sides and aluminum cover with transparent acrylic front. U-Tube Manometer (Glass/Acrylic) Used for precision measurement of Pressure and Differential Pressure. Zero adjustment scale. Wall / Stand mounted. Measures up to 750mm of water	3	set	
		3	<b>PITOT TUBE</b> Specifications: L Type 304 Stainless Steel Pitot Tube 300mm / 11 13/16" Long x 110mm / 4 21/64" insert length, Diameter 6 mm / 15/64" Testing both Static and Total (Dynamic) Air Pressure Error range (K Factor): 1.001 to 0.998, +/- 0.1%	3	sets	

			15/64 Barb Access Fitting with Digital Pressure Gauge to measure flow			
01-0157-25 COE-CHE	4	<b>DIGITAL TEMPERATURE CONTROL HEATING PLATE WITH MAGNETIC STIRRER:</b> Specification: <ul style="list-style-type: none"><li>•High Performance microprocessor digital feedback control</li><li>•Feedback control of the temperature on ceramic coated top plate</li><li>•Minimum of 350°C temperature and ±1°C control accuracy by PT sensor</li><li>•Feedback control of speed and digital display</li><li>•Included 99hr/59min digital timer</li><li>•The set value storage functionate., rpm, and timer</li><li>•Locking mode for experimental safety supported</li><li>•Top Plate size: minimum of or at least 10"x10"</li><li>•Heater: 1400Watts</li><li>•Temp Range: minimum or at least 350°C</li><li>•Timer: Digital, 99hr/59min</li><li>•Stirring capacity: up to 15L</li><li>•Stirring speed: 100-1300rpm</li><li>•Control: Microprocessor feedback and digital display</li><li>•Electric power: 220V, 60hz</li><li>•Dimension: 310W x 430D x 120H (mm)</li><li>•Weight: 7kg</li></ul>		1	unit	
	5	<b>ROTARY EVAPORATOR COMPLETE SET:</b> Specification: <ul style="list-style-type: none"><li>• Motorized for the rotation mechanism</li><li>• Visual Display of rotating speed, temperature of water bath and vapor</li><li>•PTFE sealing method is adopted for glass contacted area</li><li>•Easy for washing and removal of viscous material with evaporating flask of 100mm dia.</li><li>•Rotational range: 20 – 280RPM.</li><li>•Heater: 1000W</li><li>•Bath Material: Stainless steel (SUS#304)</li><li>•Capacity: 4.3 Liter</li><li>•Bath size: Ø245x120L(mm)</li><li>•Evaporating Capacity: 50 – 3000ml</li><li>•Temp. range: Amb. to 180°C</li><li>•Controller &amp; display: Digital speed control &amp; digital LED rpm display</li><li>•Safety device: Over temp. limiter, over current protection</li><li>•Included Water Bath, 1 liter glass set, and Vacuum Pump Chemical Resistant</li></ul>		1	unit	
	6	<b>WATER &amp; WASTEWATER MULTIPARAMETER (WITH COD) PHOTOMETER AND PH METER:</b> Specification: <ul style="list-style-type: none"><li>•Allows measurement of COD, Total Nitrogen and Total Phosphorus</li><li>•Wavelength Accuracy ±1 nm</li><li>•Light Source 5 LEDs with 420 nm, 466 nm, 525 nm, 575 nm, and 610 nm narrow band interference filters</li><li>•Spectral bandwidth 8 nm</li></ul>		1	unit	



		<ul style="list-style-type: none"><li>•Input Channels 1 pH electrode input and 5 photometer wavelengths</li><li>•pH Electrode digital pH electrode</li><li>•Logging Type log on demand with user name and sample ID optional input</li><li>•Logging Memory 1000 readings</li><li>•Connectivity USB-A host for flash drive; micro-USB-B for power and computer connectivity</li><li>•GLP calibration data for connected pH electrode</li><li>•Display 128 x 64-pixel LCD with backlight</li><li>•Battery Type / Life 3.7 VDC Li-polymer rechargeable battery / &gt;500 photometric measurements or 50 hours of continuous pH measurement</li><li>•Power Supply 5 VDC USB 2.0 power adapter with USB-A to micro-USB-B cable (included)</li><li>•Environment 0 to 50.0 °C (32 to 122.0 °F); 0 to 95% RH, non-condensing</li><li>•Dimensions 206 x 177 x 97 mm (8.1 x 7.0 x 3.8")</li><li>•Weight 1.0 kg (2.2 lbs.)</li><li>•Photometer/Colorimeter Light Detector silicon photodetector</li><li>•Cuvette Type round, 24.6 mm</li><li>•Number of Methods 128 max.</li><li>•Supplied with sample cuvettes and caps (4 ea.), cloth for wiping cuvettes, USB to micro-USB cable connector, power adapter and instruction manual.</li></ul>			
	7	<p><b>LABORATORY ACID/BASE SAFETY CABINET:</b> Specification: three in one - storage of flammable liquids and aggressive chemicals in one cabinet integrated air ducts - ready for connection to a technical exhaust system no authorized use: doors lockable with profile cylinder (integration in an existing locking system possible) / cylinder lock Light Grey (RAL 7035) wing doors with door open arrest system Dividing Wall 2 hermetically separated storage compartment All doors can be operated and locked separately Available in upright Sizes: (exterior: W x D x H) mm Upright: 1197 x 617 x 1969</p> 	1	unit	
4	<b>UNMANNED SURVEY VESSEL (USV) FOR HYDROGRAPHIC SURVEYING</b>				
	PR No.	Item No.	Description	Qty	Unit
		1	<p><b>HYDROGRAPHIC SURVEY USV</b></p> <ul style="list-style-type: none"><li>• Portable platform, compact and lightweight for one-man operation, ready to Integrate survey GNSS payloads such as single beam echo sounder, RTK receiver, ADCP, etc....</li><li>• Robust and durable hull crafted from carbon fiber composite</li><li>• Collision avoidance and real-time video streaming capabilities</li><li>• Effortlessly swappable battery pack with plug-and-convenience</li><li>• Differential control thrusters ensure exceptional maneuverability</li></ul>	1	Set

		<p><b>GROUND CONTROL BASE STATION WITH SOFTWARE</b></p> <p>The ground control base station software consists of three (3) functional modules: navigation monitoring module, hull monitoring module and auxiliary monitoring module. The Navigation Monitoring Module is basic functional module for the interaction between the ground control base station and the unmanned boat, realizing the unmanned boat's route mission planning, manual and automatic control, video monitoring, parameter configuration, navigation playback, data chart analysis and other functions; at the same time, it can display the navigation environment USV, realize the analysis and display of nautical charts, radar, video and other sensor data, as well as danger warnings, target identification and other functions, and display collision avoidance warnings, effectively ensuring navigation safety and realizing effective control of the USV. The Hull Monitoring Module uses instruments and graphics to simply, intuitively and vividly display the operating status of each device and module on the USV, record operation logs, and use video to monitor the equipment placed in its cabin. It performs fault diagnosis based on equipment alarm prompts, quickly locates the problem, and provides fault analysis reports and maintenance suggestions. The Auxiliary Monitoring Module is used to realize the display of auxiliary information and auxiliary software control functions.</p>	1	Set	
		<p><b>SINGLE BEAM ECHOSOUNDER</b></p> <p>Acoustic frequency: 450khz</p> <ul style="list-style-type: none"><li>•Single beam echo sounder, housing material: acetal</li><li>• Range 0.15 m ~ 100 m (450 kHz),</li><li>• Beam width 5° Conical (-3dB),</li></ul> <p>Range 0.15 m ~ 100 m (450 kHz),</p> <ul style="list-style-type: none"><li>• Beam width 5° Conical (-3dB),</li><li>• Water Column Resolution: appx. 7.5 mm</li><li>• Altimeter Range Resolution: 1.0 mm</li><li>• Temperature Resolution: 0.1°C</li><li>• Digital Output Interface: RS-232, RS-485, RS-422</li><li>• Communication Speed: 4,800~921,600 baud (115,200bauddefault)</li><li>• Data Output Format: ASCITXT, NMEA0183</li><li>• Configuration or Data Reading: Echo logger Control Program or any terminal program</li><li>• Operational Temperature: -10°C+50°C</li><li>• Power Supply: 8~75VDC, 2W max</li><li>• Dimension: D56 x L85</li><li>• Weight: 270g</li><li>• Software compatibility: compatible software</li></ul>	1	Unit	
		<p><b>GNSS RTK RECEIVERS</b></p> <ul style="list-style-type: none"><li>• No. of Channels: minimum 1500</li><li>• GPS: L1, L1C, L2C, L2P, L5</li><li>• GLONASS: G1, G2, G3</li><li>• BDS: BDS-2: B11, B21, B31, BDS-3: B11, B31, B1C, B2a, B2b</li><li>• GALILEO: E1, ESA, ESB, E6C, Alt BOC</li><li>• BEIDOU: B11, B21, B31, B11, B31, B1C, B2A, B28</li><li>• Positioning Output Rate: 1Hz ~ 20Hz</li><li>• Initialization Time: &lt; 10s</li></ul>	2	Unit	

		<b>HYDROGRAPHIC SOFTWARE</b> <ul style="list-style-type: none"><li>• Perpetual license with 1-yr subscription</li><li>• Hydrographic software for single beam echo sounder data collection and mapping, computer-bound license</li><li>•Supported System: Single beam echosounder, Side scan sonar, Sub-bottom profiler</li></ul>			
		<b>Laptop</b> <ul style="list-style-type: none"><li>• i7 Processor or equivalent</li><li>• 16GB RAM</li><li>• 1TB SSD Testing and Training:</li><li>• Comprehensive testing to ensure all systems are fully operational.</li><li>• Operation video and Manual book will be provided.</li><li>• On-site training for university staff and researchers on the operation of USV.</li></ul> 240,000	1	Unit	