



**TERMS OF REFERENCE FOR THE PROCUREMENT OF TECHNICAL AND SCIENTIFIC EQUIPMENT
(SUPPLY, DELIVERY, INSTALLATION, AND TRAINING)**

I. BACKGROUND AND RATIONALE

The Philippine Science High School System prepares its students to become globally competitive Filipino scientists equipped with 21st-century skills. Likewise, the PSHSS offers a curriculum that emphasizes science and mathematics and prepares its students for careers in Science and Technology. The Philippine Science High School System offers a research-based STEM curriculum to students with high aptitude in Science and Mathematics. In line with this, it requires a Technical and Scientific Equipment to prepare and develop the Science Process Skills of the scholars to become a globally competitive Filipino scientist. This scientific equipment can be utilized for instructions and research with high accuracy and reliability.

II. SCOPE OF WORK AND JOB SPECIFICATIONS

The supplier should be able to provide the listed technical and scientific equipment following the specifications, certifications, and unit demonstration if necessary. The supplier must conduct training to the end-users on proper handling, troubleshooting, pre-calibration, preventive maintenance, and others. Certificates must be provided such as calibration certificate, quality control or assurance certificate, and others. The service provider must conduct a pre-installation conference with the resident engineers of the procuring entity. The service provider must be in the business for not less than 5 years. The delivery, installation and training period will be 120 days.

III. APPROVED BUDGET FOR THE CONTRACT

LOT 1 – 6,000,000.00 LOT 2 – 3,000,000.00 LOT 3 – 2,100,000.00

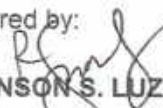
IV. EVALUATION AND SELECTION CRITERIA

Proposal with the lowest calculated and responsive bid with complete documents shall be accepted.

V. PAYMENT SCHEME

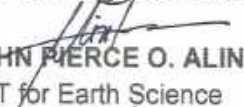
Payment for the procured items shall be made utmost 30 working days from the day the said items are completely installed to the procuring entity and certificate of training is issued to the end-users.

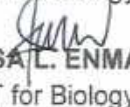
Prepared by:


ROBINSON S. LUZON
SST for Integrated Science


MARY SHERYL SALDON-RAZNEE
SST for Biology


LEE CASTOR I. CANONO
SST for Physics

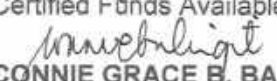

JOHN PIERCE O. ALINTANA
SST for Earth Science


DYSAL L. ENMACINO
SST for Biology


JUNE CARLO F. REYES
SST for ADTech

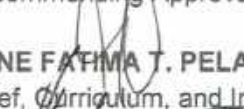

ANGELIE M. MOROSCALLO
SST for ADTech

Certified Funds Available:


CONNIE GRACE B. BALINGIT
Budget Officer

JANE ROSARIE B. SIONG
Accountant II

Recommending Approval:


ANNE FATIMA T. PELAYRE
Chief, Curriculum and Instruction Division


MILO S. SALDON
Chief, Finance and Administrative Division


HAZEL R. LAGAPA
Chief, Student Services Division

Approved:


ENGR. LOUIE C. JAMORA
Director III



ENCLOSURE No. 1

LOT 1			
Item No.	Quantity	Unit	ITEM DESCRIPTION
1	1	Set	<p>Laboratory Furniture</p> <p>Two (2) Laboratory Rooms</p> <p>Specifications per Laboratory Room</p> <ul style="list-style-type: none">• Six (6) Rectangular working tables with four (4) electrical outlets, water, and gas outlets, end-sink with faucet and rack dryer.<ul style="list-style-type: none">○ 2m x 1.2m x 0.90m○ Phenolic Resin Top Typical Section○ Table Thickness: 20mm or better○ Chemical Resistant○ Scratch-resistant○ Safe to moisture○ UL Classified○ Fire-rated○ Anti-static material○ SEFA 8-1998 Chemical Resistant Testing Greengard Certified○ Phenolic Resin Technical Data on chemical resistance to acids, bases, salts halogens, organic chemicals, solvents and biological stains under 24 hours test with corresponding test result based on SEFA as well as the main reagents from the PSI or any American and European Testing Laboratory.○ Counter top test on material properties with corresponding test method on test result under En, STM and ISO○ With laminated finished based cabinet with breakdown as:<ul style="list-style-type: none">▪ Dimension: 4800mm-length▪ With powder coated finish metal base frame and legs with adjustable leveler.▪ Three (3) units hanging type one swing outdoor cabinet in hand grab type handle and adjustable shelf.▪ Two (2) units open type leg rooms▪ Two (2) units swing outdoors and fixed panel▪ Four (4) units two gang electrical outlets• One (1) Ducted Fume Hood with Vertical Sash<ul style="list-style-type: none">○ 2m x 0.8m x 2m (WxDxH) or better○ With by-pass grill○ Sash work height 500mm○ With airfoil○ With storage cabinet○ With controller for airflow and sash alarm○ With baffles○ With electrical receptacles○ With the safety valve for water and gas○ Chamber type duct○ With power supply, socket, fan switch, light switch• 1 unit Eye washer• 1 unit Laboratory Shower• 1 unit Demonstration Table with, electrical outlet, water, and gas outlets, end-sink with faucet and rack dryer.<ul style="list-style-type: none">○ 2m x 1.2m x 0.90m• Side-tables with cabinets and lavatory• 4 Display Cabinets (2m x 1m x 0.5m)• 30 pcs Laboratory Stool• 1 unit tool case cabinet• 1 unit First-aid Cabinet• 1 unit Fire Blanket



		<ul style="list-style-type: none">• 1 unit Chemical Spill Kit• 1 unit compressed gas holder <p>One (1) Chemical preparation room</p> <ul style="list-style-type: none">• Side table with lavatory<ul style="list-style-type: none">○ Phenolic Resin Top Typical Section○ Table Thickness: 20mm or better○ Chemical Resistant○ Scratch-resistant○ Safe to moisture○ UL Classified○ Fire-rated○ Anti-static material○ SEFA 8-1998 Chemical Resistant Testing Greengard Certified○ Phenolic Resin Technical Data on chemical resistance to acids, bases, salts halogens, organic chemicals, solvents and biological stains under 24 hours test with corresponding test result based on SEFA as well as the main reagents from the PSI or any American and European Testing Laboratory.○ Countertop test on material properties with corresponding test method on test result under En, STM and ISO• Chemical Reagent Cabinet (2m x 1m x 0.5m) with exhaust piping• Ducted Chemical Fume Hood with vertical sash<ul style="list-style-type: none">○ 1m x 0.8m x 2m (WxDxH) or better○ With by-pass grill○ Sash work height 500mm○ With airfoil○ With storage cabinet○ With controller for airflow and sash alarm○ With baffles○ With electrical receptacles○ With the safety valve for water and gas○ Chamber type duct○ With power supply, socket, fan switch, light switch• Center Table with Reagent Rack <p>One (1) Instrumentation Room</p> <ul style="list-style-type: none">• Solid Phenolic Resin Top table with electrical outlet, with drawers and hanging cabinets.<ul style="list-style-type: none">○ Phenolic Resin Top Typical Section○ Table Thickness: 20mm or better○ Chemical Resistant○ Scratch-resistant○ Safe to moisture○ UL Classified○ Fire-rated○ Anti-static material○ SEFA 8-1998 Chemical Resistant Testing Greengard Certified○ Phenolic Resin Technical Data on chemical resistance to acids, bases, salts halogens, organic chemicals, solvents and biological stains under 24 hours test with corresponding test result based on SEFA as well as the main reagents from the PSI or any American and European Testing Laboratory.○ Countertop test on material properties with corresponding test method on test result under En, STM and ISO○ <p>Service and Warranty</p> <ul style="list-style-type: none">- 1-year warranty on parts and services after commissioning and acceptance.- Provide detailed design layout and drawing based on the above specifications and floor plan.
--	--	--



			<ul style="list-style-type: none">- Complete with necessary installation accessories for immediate operation and start-up- During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program.- Deliver, uncrate, set into place, make all the final connections and start-up of the laboratory furniture. <p>Training</p> <ul style="list-style-type: none">- The training should cover lectures and intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of lab furniture's performance should also be discussed. The training shall be conducted on-site. <p>Documentation</p> <ul style="list-style-type: none">- Authenticated training certificate of Service Personnel from the manufacturer related to the installation, lab furniture maintenance, and troubleshooting.- Manufacturer's certificate of compliance and inspection.- 1 original copy and 1 photocopy of operating and service manuals in English.- Must provide the necessary information and test procedures required to prove that the lab furniture meets the specified requirements.- A certificate of qualification must also be issued. <p>Testing and Acceptance</p> <ul style="list-style-type: none">- Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications.- If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier. <p>Site Visitation</p> <ul style="list-style-type: none">- It is the supplier's responsibility to become thoroughly familiar with the site of the intended installation, to determine everything necessary to accomplish the installation. Failure of the supplier to make a site visit does not relieve the supplier of responsibility to fully understand what is necessary to accomplish a successful and complete installation. The supplier should quote all essential pre-installation requirements and utility requirements.
--	--	--	--

LOT 2			
Item No.	Quantity	Unit	ITEM DESCRIPTION
1	1	Set	CNC Router (Full-size Gantry) Accessories include: Spindles & Routers Bits and Collets Automatic Tool Changer Vacuum Systems Dust Collectors Rotary Indexers Enclosures Production Aids Machine Specifications: Cutting speed 10 in/s (250 mm/s) Jogging speed 30 in/s (760 mm/s) Move speed (X, Y) 12 in/s (305 mm/s)



		<p>Move speed (Z) 6 in/s (153 mm/s) Positioning speed (X, Y) 30 in/s (760 mm/s) Positioning speed (Z) 15 in/s (380 mm/s) Step resolution 0.0004" (0.010 mm) Positional repeatability 0.002" (0.051 mm) Linear cutting power 150 lbs (68kg) X- and Y-axis drive system Rack and pinion Z-axis drive system Rack and pinion Input voltage 220V, 60Hz, 3-phase</p> <p>Features: Fast, closed-loop motors fitted with low-backlash, tapered-hob gear heads on all three axes (two on the X-axis) Tough precision linear bearings on the moving gantry and hardened steel rails for the x-axis. Reliable rack-and-pinion power transmission on each axis. Impressive cutting speeds of up to 600 inches per minute (depending on cutting bit and material) and rapid transit speeds of 1,800 inches per minute. Step resolution of .0004". The positional accuracy of +/- .002". Sealed Industrial UL Certified Control Box. Emergency Stop disconnect switch in the Control Box with integrated and cabled remote Emergency Stop Buttons. Z-zero Touch-Off Plate and XY Proximity Switches. software to run your CNC.</p> <p>Dust Skirt ready to connect to your dust collector. Each new tool comes bundled with two powerful software programs to create CNC projects.</p> <p>Shipped as four ready-to-assemble modules. On-site assembly and training are available. Free Tech Support and User Forum.</p> <p>Service and Warranty</p> <ul style="list-style-type: none">- 1-year warranty on parts and services after commissioning and acceptance and 1-year free calibration and preventive maintenance on site.- Complete with necessary installation accessories for immediate operation and start-up- During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program.- Deliver, uncrate, set into place, make all the final connections and start-up of the instrument- Calibration certificate traceable to international standards. <p>Training</p> <ul style="list-style-type: none">- The training should cover lectures on the theory and principles of the instrument, its applications, software applications, data process, and interpretation, as well as intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of equipment's performance should also be discussed. The training shall be conducted on-site. <p>Documentation</p> <ul style="list-style-type: none">- Authenticated training certificate of Service Personnel from the manufacturer related to the installation, equipment maintenance, and troubleshooting.- Manufacturer's certificate of compliance and inspection.- 1 original copy and 1 photocopy of operating and service manuals in English.- Must provide the necessary information and test procedures required to prove that the instrument meets the specified requirements.
--	--	---



			<ul style="list-style-type: none">- Test data and calibration certificates of the calibrating instruments used must be attached. A certificate of qualification must also be issued.- Brochure with pictures must be provided during bid opening. <p>Testing and Acceptance</p> <ul style="list-style-type: none">- Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications.- If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier.
--	--	--	--

LOT 3			
Item No.	Quantity	Unit	ITEM DESCRIPTION
1	1	Unit	<p>DRYING OVEN, 220 V</p> <p>Specifications: Volume capacity is at least 50 liters; the Number of shelves is 3 or more and should be adjustable, Setting temperature 15 to 300°C or better, Stainless steel interior and housing, with natural convection, stainless steel door and insulated with tempered glass observation window, LED display.</p> <p>Service and Warranty</p> <ul style="list-style-type: none">- 1-year warranty on parts and services after commissioning and acceptance and 1-year free calibration and preventive maintenance on site- Complete with necessary installation accessories for immediate operation and start-up- During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program.- Deliver, uncrate, set into place, make all the final connections and start-up of the instrument- Calibration certificate traceable to international standards. <p>Training</p> <ul style="list-style-type: none">- The training should cover lectures on the theory and principles of the instrument, its applications, software applications, data procession, and interpretation, as well as intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of equipment's performance should also be discussed. The training shall be conducted on-site. <p>Documentation</p> <ul style="list-style-type: none">- Authenticated training certificate of Service Personnel from the manufacturer related to the installation, equipment maintenance, and troubleshooting.- Manufacturer's certificate of compliance and inspection.- 1 original copy and 1 photocopy of operating and service manuals in English.- Must provide the necessary information and test procedures required to prove that the instrument meets the specified requirements.- Test data and calibration certificates of the calibrating instruments used must be attached. A certificate of qualification must also be issued. <p>Testing and Acceptance</p> <ul style="list-style-type: none">- Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications.



			<ul style="list-style-type: none"> - If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier. <p>Site Visitation</p> <ul style="list-style-type: none"> - It is the supplier's responsibility to become thoroughly familiar with the site of the intended installation, to determine everything necessary to accomplish the installation. Failure of the supplier to make a site visit does not relieve the supplier of responsibility to fully understand what is necessary to accomplish a successful and complete installation. The supplier should quote all essential pre-installation requirements and utility requirements.
2	1	Set	<p>UV-VIS Spectrophotometer-Double beam, 220V</p> <p>Wavelength range: 190 - 1100nm Spectral bandwidth: 0.5nm – 5nm Photometric mode: Transmittance, Absorbance Photometric range: -0.3-3.0 Abs Photometric Accuracy: ± 0.002 Abs at 0.5 Abs, ± 0.004 Abs at 1.0 Abs, ± 0.006 Abs at 2.0 Abs Photometric Repeatability: $< \pm 0.001$ Abs at 0.5 Abs, $< \pm 0.001$ Abs at 1 Abs, $< \pm 0.003$ Abs at 2 Abs Baseline flatness: $< \pm 0.0006$ Abs (1000 to 190 nm one hour after light source turned on) Noise level: < 0.00005 Abs (700 nm) Detector: Silicon Photo diode Compartment: reference and sample compartment analyze simultaneously for 6 samples or more. Stray light: $< 0.02\%$ at 220nm (NaI), $< 1.0\%$ nm (KCl)</p> <p>Inclusions UV-Vis Spectrophotometer workstation: UV Probe Software Complete UV-Vis Spectrophotometer Accessories: Quartz cuvette, 10mm path length – (2pcs), complete PC system and printer with continuous ink, O/S: Microsoft Windows 10, Hard Disk Drive: 1TB, Monitor: 21.5" LED Color monitor or better, Processor: i7, 32G RAM PC controlled or stand-alone placement of memory possible in PC, built-in and USB 1nm bandwidth.</p> <p>Service and Warranty</p> <ul style="list-style-type: none"> - 1-year warranty on parts and services after commissioning and acceptance and 1-year free calibration and preventive maintenance on site - Complete with necessary installation accessories for immediate operation and start-up - During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program. - Deliver, uncrate, set into place, make all the final connections and start-up of the instrument - Calibration certificate traceable to international standards. <p>Training</p> <ul style="list-style-type: none"> - The training should cover lectures on the theory and principles of the instrument, its applications, software applications, data procession, and interpretation, as well as intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of



			<p>equipment's performance should also be discussed. The training shall be conducted on-site.</p> <p>Documentation</p> <ul style="list-style-type: none"> - Authenticated training certificate of Service Personnel from the manufacturer related to the installation, equipment maintenance, and troubleshooting. - Manufacturer's certificate of compliance and inspection. - 1 original copy and 1 photocopy of operating and service manuals in English. - Must provide the necessary information and test procedures required to prove that the instrument meets the specified requirements. - Test data and calibration certificates of the calibrating instruments used must be attached. A certificate of qualification must also be issued. <p>Testing and Acceptance</p> <ul style="list-style-type: none"> - Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications. - If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier. <p>Site Visitation</p> <ul style="list-style-type: none"> - It is the supplier's responsibility to become thoroughly familiar with the site of the intended installation, to determine everything necessary to accomplish the installation. Failure of the supplier to make a site visit does not relieve the supplier of responsibility to fully understand what is necessary to accomplish a successful and complete installation. The supplier should quote all essential pre-installation requirements and utility requirements.
3	1	set	<p>Digital Rotary Evaporator, 220V</p> <p>Specifications:</p> <p>Bath:</p> <p>Heating Capacity – 1300W or better</p> <p>Temp. range heating bath – 20-210°C</p> <p>Temp. accuracy bath – $\pm 1^\circ\text{C}$, or better</p> <p>Material Heating Bath – Stainless Steel</p> <p>Volume Heating Bath – 4.5 liters, maximum</p> <p>Display- Digital LCD</p> <p>Rotary Evaporator</p> <p>Display rotation speed range – 10-280 rpm or better</p> <p>Display – Digital LCD that indicates rotation speed, heating bath, and vapor temperature</p> <p>Height adjustment – 155mm, or better</p> <p>Condensing surface – 2,200 cm²</p> <p>Inclusions: Diagonal coil condenser, vapor tube for the diagonal condenser, 1L receiving flask, 1L evaporator flask, feed tube with stopcock, vacuum seal, conical clip, spherical joint clip</p> <p>Vacuum Pump – Variable vacuum, flowrate 19L/min</p> <p>Cooler System</p> <p>Cooling Capacity – 400W or better</p> <p>Temp. range - -20 to 30°C</p> <p>Capacity – 2 liters or better</p> <p>Pump rate – 8 L/min or better</p>



			<p>Service and Warranty</p> <ul style="list-style-type: none"> - 1-year warranty on parts and services after commissioning and acceptance and 1-year free calibration and preventive maintenance on site - Complete with necessary installation accessories for immediate operation and start-up - During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program. - Deliver, uncrate, set into place, make all the final connections and start-up of the instrument - Calibration certificate traceable to international standards. <p>Training</p> <ul style="list-style-type: none"> - The training should cover lectures on the theory and principles of the instrument, its applications, software applications, data procession, and interpretation, as well as intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of equipment's performance should also be discussed. The training shall be conducted on-site. <p>Documentation</p> <ul style="list-style-type: none"> - Authenticated training certificate of Service Personnel from the manufacturer related to the installation, equipment maintenance, and troubleshooting. - Manufacturer's certificate of compliance and inspection. - 1 original copy and 1 photocopy of operating and service manuals in English. - Must provide the necessary information and test procedures required to prove that the instrument meets the specified requirements. - Test data and calibration certificates of the calibrating instruments used must be attached. A certificate of qualification must also be issued. <p>Testing and Acceptance</p> <ul style="list-style-type: none"> - Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications. - If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier. <p>Site Visitation</p> <ul style="list-style-type: none"> - It is the supplier's responsibility to become thoroughly familiar with the site of the intended installation, to determine everything necessary to accomplish the installation. Failure of the supplier to make a site visit does not relieve the supplier of responsibility to fully understand what is necessary to accomplish a successful and complete installation. The supplier should quote all essential pre-installation requirements and utility requirements.
4	25	Units	<p>Binocular Microscope</p> <p>Body-interchangeable, inclined binocular body, 360° rotatable head, Eyepieces-highest quality 10X wide-angle anti-fungus field eyepiece. Objective-parfocal, antifungals coated 4x, 10x, 40x and 100x (oil immersion) with plan achromatic correction. Stage horizontal mechanical stage preferably 100 x 140 mm with fine graduations designed with convenient coaxial adjustment for slide manipulation</p>



			<p>preferable through 30x70 mm. Substage-abbe condenser focusable, continuously variable iris diaphragm. Illuminator-built-in LED light source with adjustable white light. Should provide dust cover and immersion oil. Electrical safety certification. Should work with input 220Vac supply.</p> <p>Service and Warranty</p> <ul style="list-style-type: none">- 1-year warranty on parts and services after commissioning and acceptance and 1-year free calibration and preventive maintenance on site- Complete with necessary installation accessories for immediate operation and start-up- During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program.- Deliver, uncrate, set into place, make all the final connections and start-up of the instrument- Calibration certificate traceable to international standards. <p>Training</p> <ul style="list-style-type: none">- The training should cover lectures on the theory and principles of the instrument, its applications, software applications, data procession, and interpretation, as well as intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of equipment's performance should also be discussed. The training shall be conducted on-site. <p>Documentation</p> <ul style="list-style-type: none">- Authenticated training certificate of Service Personnel from the manufacturer related to the installation, equipment maintenance, and troubleshooting.- Manufacturer's certificate of compliance and inspection.- 1 original copy and 1 photocopy of operating and service manuals in English.- Must provide the necessary information and test procedures required to prove that the instrument meets the specified requirements.- Test data and calibration certificates of the calibrating instruments used must be attached. A certificate of qualification must also be issued. <p>Testing and Acceptance</p> <ul style="list-style-type: none">- Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications.- If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier. <p>Site Visitation</p> <ul style="list-style-type: none">- It is the supplier's responsibility to become thoroughly familiar with the site of the intended installation, to determine everything necessary to accomplish the installation. Failure of the supplier to make a site visit does not relieve the supplier of responsibility to fully understand what is necessary to accomplish a successful and complete installation. The supplier should quote all essential pre-installation requirements and utility requirements.
5	1	Unit	<p>Human Skeleton Model</p> <ul style="list-style-type: none">• Height: 168cm or more• Hanged or platformed base with wheels.• Complete human adult bones.
6	5	Set	<p>Laboratory Micropipette Kit</p> <p>Per set must have the following:</p>



		<ul style="list-style-type: none">• 4 units of adjustable single channel micropipette (0.5-10μL, 10-100μL, 100-1000 μL, 1000-5000 μL)• With digital display and tip ejector• Rotatable piston for volume adjustment• With pipette stand for 4 or more pipettes• 8 racks of sterile tips (2 racks for 10μL, 2 racks for 100μL, 2 racks for 200μL, 2 racks for 1000μL)• Tip Ejector collar and Tip cone must be made of chemical-resistant material. <p>Service and Warranty</p> <ul style="list-style-type: none">- 1-year warranty on parts and services after commissioning and acceptance.- Provide detailed design layout and drawing based on the above specifications and floor plan.- Complete with necessary installation accessories for immediate operation and start-up- During the warranty period, the supplier must repair or replace any system component on-site at no charge. Labor and travel must be included in the warranty program.- Deliver, uncrate, set into place, make all the final connections and start-up of the instrument <p>Training</p> <ul style="list-style-type: none">- The training should cover lectures and intensive hands-on operation. Basic and advanced troubleshooting and maintenance including the verification of lab furniture's performance should also be discussed. The training shall be conducted on-site. <p>Documentation</p> <ul style="list-style-type: none">- Authenticated training certificate of Service Personnel from the manufacturer related to the installation, lab furniture maintenance, and troubleshooting.- Manufacturer's certificate of compliance and inspection.- 1 original copy and 1 photocopy of operating and service manuals in English.- Must provide the necessary information and test procedures required to prove that the lab furniture meets the specified requirements.- A certificate of qualification must also be issued. <p>Testing and Acceptance</p> <ul style="list-style-type: none">- Acceptance testing will occur after completion of the training course and after the supplier states the system is installed and ready to perform in compliance with specifications.- If the system does not meet standard performance expectations, the Supplier will have one month to rectify the defects and clear the acceptance test, failing which, PSHS-ZRC reserve the right to get the equipment replaced by the Supplier at no extra cost to PSHS-ZRC. Succeeding conduct of the validation/qualification shall also be the responsibility and at the cost of the Supplier.
--	--	--