



TECHNICAL SPECIFICATION FOR THE PROCUREMENT OF TECHNICAL AND SCIENTIFIC EQUIPMENT (SUPPLY, DELIVERY, INSTALLATION, AND TRAINING)

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. PSHS also provides avenues for those students whose passion and interest are leaned towards the arts, culture, music, languages and other forms of humanistic expressions. In line with this, there is a need to have several technical sets of equipment to help prepare and develop the holistic skills of the scholars to become globally competitive Filipino scientists and professionals someday.

SCOPE OF WORK AND JOB SPECIFICATIONS

The supplier must be a certified distributor and should be able to provide the listed technical equipment following the specifications, certifications, and unit demonstration if necessary. The supplier must conduct training for the end-users on proper handling, troubleshooting, pre-calibration, preventive maintenance, and others. As such, the supplier should have their own certified technical personnel for the particular equipment. 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 and installation period will be 90 days.

APPROVED BUDGET FOR THE CONTRACT

The approved budget for the contract is FOUR MILLION PESOS (Php 4,000,000.00). The budget is divided into 3 lots. Lot 1 with the budget of ONE MILLION AND ONE HUNDRED SIXTY THOUSAND PESOS (1,160,000.00), lot 2 with ONE MILLION EIGHT HUNDRED FORTY THOUSAND PESOS (1,840,000.00) and lot 3 with ONE MILLION PESOS (1,000,000.00)

EVALUATION AND SELECTION CRITERIA

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

PAYMENT SCHEME

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



Lot No.1

Item No.	Unit	ITEM DESCRIPTION	Qty	Unit Cost
1	Lot	Supply, Delivery of Physics Amateur Radio Satellite Ground Station Equipment	1	1,160,000.00
1	unit	<p>All Mode VHF/UHF Transceiver</p> <p>Frequency coverage : 144.000–148.000, 430.000–450.000, 1240.000–1300.000 MHz</p> <p>Mode: SSB, CW, RTTY, AM, FM, DV, DD Number of channels: 107 (99 Simplex + 6 Program scan edges + 2 CALL) × 3 bands, 99 (Satellite), 2500 (DR function)</p> <p>Antenna connectors: 144 MHz SO-239 (50 Ω), 430/440, 1200 MHz Type-N (50 Ω)</p> <p>Power supply requirement: 13.8 V DC ±15% (Negative ground)</p> <p>Transmitter Output power (144 MHz) 144 MHz 430/440 MHz 1200 MHz</p> <p>SSB/CW/FM/RTTY/DV/DD 0.5–100 W 0.5–75 W 0.1–10 W</p> <p>AM 0.125–25 W 0.125–18.75 W 0.025–2.5 W</p> <p>Receiver Receiver system:</p> <p>Audio output power: More than 2.0 W (1 kHz, 10% distortion) into an 8 Ω load</p> <p>With NTC License</p>	1	
2	unit	<p>HF/50MHz All Mode Transceiver</p> <p>Frequency coverage Rx: 0.030– 60.000 MHz</p> <p>Tx: 1.800–1.999, 3.500–3.999, 5.255–5.405 7.000–7.300, 10.100–10.150, 14.000–14.350, 18.068–18.168, 21.000–21.450, 24.890–24.990, 28.000–29.700, 50.000–54.000 MHz</p>	1	



		<p>Mode: USB, LSB, CW, RTTY, PSK31/63, AM, FM</p> <p>Number of channels: 101 (99 regular, 2 scan edges)</p> <p>Antenna connectors: SO-239 × 2 (50 Ω unbalanced (Tuner off))BNC × 1 (RX antenna In/Out)</p> <p>Power supply requirement: 13.8 V DC ±15%</p> <p>Power consumption TX: 23 A (at 100 W output power) RX: 3.0 A (Standby), 3.5 A (Maximum audio)</p> <p>Transmitter Output power (HF/50 MHz): SSB/CW/FM/RTTY/PSK: 1–100 WAM: 1–25 W Digital P.S.N.</p> <p>Receiver Receiver system: Direct Sampling Super heterodyne</p> <p>With NTC License</p>		
3	unit	<p>Antenna Azimuth-Elevation Rotator and Controller</p> <p>Voltage requirement: 110-120 or 200-240 VAC Motor voltage: 24 VAC(apprx., @60Hz): Rotation time: Elevation (180°): 67 sec. Azimuth (360°): 58 sec Maximum continuous operation: 5 minutes Rotation torque: Elevation: 14 kg-m, Azimuth: 6 kg-m</p> <p>Braking torque: Elevation: 40 kg-m, Azimuth: 40 kg-m Vertical load: 200 kg Pointing accuracy: ± 4 % Wind surface area: 1 m Control cables: 2 x 6 conductors - #20 AWG or larger Mast diameter: 38-63 mm Boom diameter: 32-42 mm Weight Rotators: 9 kg Controller: 3 kg</p>	1	
4	unit	<p>Antenna Azimuth Rotator and Controller</p> <p>Power Supply Voltage: 117/220 VAC, 50-60 Hz Power Supply Current Consumption: 1.0 A Rotor Voltage: 11-24 VDC Cable Conductors Required: 6 360° Rotation Time (Non Loaded): 100 ± 10 sec to 0 40 ± 5 sec (Variable) Rotation Range: 450° ± 3° Rotation Torque: 600 to 1,100 kgf-cm Braking Torque: 4,000 kgf-cm Maximum Vertical Load: 200 kg or less (continuous)800 kg (momentary) Mast Outside Diameter: 1.5 to 2.5 inches (38 to 63 mm) Braking Type: Mechanical and Electrical stoppers</p>	1	



		Rotator Dimension: 7.5 inches diameter 12.5 inches high (186 x 300 mm) Rotator Weight: Approx. 7.7 Lbs. (3.6 kg) Controller Dimension (WHD): 200 x 130 x 193 mm Controller Weight: Approx. 2.8 kg		
5	unit	Computer Control Interface for Antenna Rotators Power Requirements: DC 12 V, 110 mA Case Size: 110 (W) x 21 (H) x 138 (D) mm Weight (approx.): 380 g Semiconductors Microprocessor: ROM: HD6303XP RAM: 27C64 A/D Converter: HD46508PA (10 bits) Serial Comms: 3-wire Async. DCE RS-232C voltage levels: 150 to 9600 baud, 8 data bits, 1 stop bit, no parity, no handshake	2	
6	Length	Coax Cable (Low Loss Cable) Generic Name: LMR-400 Flex Type: Flexible Impedance: 50 Ohm Dielectric Type: PE (F) Velocity of Propagation: 85 % Jacket Diameter: 0.405 in Jacket Material: PE No. of Shields: 2 Attenuation at 1 Ghz.: 4.25 dB RF Shielding: 90 dB Frequency, Max: 6 GHz Max Operating Temperature: 85° C Center Conductor Type: Solid Coax Type: Coax	50	
7	unit	VHF/UHF Preamplifier Preamplifier Location: Mast mount Preamplifier Frequency Range: 144-148 MHz Preamplifier Gain: 15 dB/25 dB Noise Figure: under 1.0 dB Automatic RF Switching Power Handling: 100 W Antenna Feedline Connection Type: UHF female, SO-239 Optimal Voltage Range: 13.6-15 Vdc Enclosure Width: 4.000 in. Enclosure Height: 3.000 in. Enclosure Depth: 3.500 in. Unit Width: 4.250 in. Unit Height: 2.313 in. Unit Depth: 1.188 in.	2	
8	unit	SM-50 (Microphone)	2	



		<p>Microphone Element: Dynamic Sensitivity: -30 dB \pm 4dB (1 kHz, 0 dB = 1 V/1 Pa) Impedance: 55 Ohms \pm 30% (at 1 kHz) Power requirement: 5-10 VDC Weight: 26 oz. (730g) Cable length: 39 inches (1m)</p>		
9	unit	<p>Power Supply</p> <p>Power Supply Type: Linear, Regulated Power Supply Continuous Output: 23A at 13.8 Vdc Power Supply Peak Output: 30A at 13.8 Vdc Power Supply Metering Type: Dual meters Power Supply Cooling Type: Fan</p>	2	
10	unit	<p>144/430(2m/70cm) Dual Band Antenna</p> <p>Vertical Antenna Height: 24 ft. Antenna Material: Fiberglass Antenna Power Rating: 200 W Antenna Connector: Type N, female Mast Mounting Type: Clamp-on</p>	2	
11	unit	<p>HF/VHF Digital SWR/Wattmeter</p> <p>Meter Frequency Range: 1.8-60/125-525 MHz Minimum Power Range: 2W Middle Power Range: 20 W Maximum Power Range: 200 W Meter Style: LCD Multi-function display Meter RF Connector Type: UHF female, SO-239 External Power Input Voltage: 10-14 Vdc</p>	1	
12	unit	<p>Software Define Radio</p> <p>In black brushed aluminum enclosure. SDR frequency capability approximately 25MHz-1700MHz.</p> <p>RTL282U Demodulator/USB interface IC R820T2 tuner IC 0.5PPM, ultra-low phase noise TCXO RF-suitable voltage regulator Shielded primary inductor Integrated custom heat sink Female SMA antenna input High-quality black brushed aluminum enclosure Through-hole direct sampling pads on PCB TCXO Specifications: Frequency stability: 0.5PPM (max) Phase noise @kHz offset: -8dBc/Hz (or better) Phase noise @0kHz: -50dBc/Hz (or better) Phase noise @00kHz: -52dBc/Hz (or better)</p>	1	
13	set	ROBOTICS AI SET, ADVANCE	5	



		<ul style="list-style-type: none"> - Intelligent Brick (1) - Rechargeable battery pack (1) - Interactive servo motors with built in rotation motor (3) - Ultrasonic sensor (1) - Touch sensors (2) - Gyro sensor (1) - Color sensor (1) - Connecting Cables - Ball Wheel - Technic Building bricks for creating a vast variety of models - Element overview, etc. - Storage box incl. sorting tray - Total piece count 541 - With Charger - 10 VDC transformer plugs into an AC outlet to recharge your Rechargeable DC Battery. With robotics software - With One (1) Portable Robotics Playing Field mat 1150mm x 2370mm 		
14	set	ROBOTICS AI Expansion Set for Advance <ul style="list-style-type: none"> - Gears - Large turntable - Robot personalization parts - Beams - Axles and connectorsf - With at least 800 building elements Delivered in a sturdy and stackable plastic storage bin.	3	



Lot No. 2

Item No.	Unit	ITEM DESCRIPTION	Qty	Unit Cost
2	Lot	Supply, Delivery, Installation, and Training for Physical and Biochemical Equipment	1	1,840,000.00
1	unit	Telescope <ul style="list-style-type: none"> - Optical Design: Newtonian Reflector - Aperture: 200mm (7.87") - Focal Length: 1000mm (39") - Focal ratio f/5 - Focal length of eyepiece 1: 20mm(.8") - Magnification of eyepiece 1: 50x - Optical tube: Aluminum - Limiting Stellar Magnitude: 14 - Resolution (Rayleigh): 0.7 arcseconds - Resolution (Dawes): 0.58 arcseconds - Optical Tube Diameter: 235mm (9.25") - Optical Tube Length: 914mm (36") - At least one (1) year warranty. 	1	
2	unit	Laser Cutter <ul style="list-style-type: none"> - Working area: 1300mm*900mm - Laser power 100W (80W, 130W, 150W, 180W, 280W and 300W for option) - Laser type: CO2 sealed laser tube - Driving system: Leadshine stepper motor - Transmission: Fulong belt transmission - Control System: Ruida control system RD6442S - Laser Engraving Speed: 0-7500mm/min - Laser Cutting Speed: 0-4000mm/min - At least one (1) year warranty. 	1	
3	unit	3D Printer <ul style="list-style-type: none"> - Printing volume: W27: 420x300x220mm - Minimum layer height: 0.05 mm - Max.printing temp.: 280°C - Max. Heated bed temp: 120°C - Certificates: CE / FCC - At least one (1) year warranty. 	1	
4	unit	Digital Tachometer <ul style="list-style-type: none"> - contact or non-contact measurement; - angular velocity= 100-1000Hz; - built-in transducer 12" operating distance; - operating temp: 0 deg C-50 deg C; - Weight = 2 lbs; - Humidity= 95% R. H. - At least one (1) year warranty. 	1	
5	unit	Thermal Cycler <ul style="list-style-type: none"> - block format, - 96-well, - 0.2 mL; - sample volume: 15-100microLiters; - with 0.2 mL eppendorf tubes (500pcs) with eppendorf rack - At least one (1) year warranty. 	1	
6	set	Digital Microscope <ul style="list-style-type: none"> - total magnification: 40x, 100x, 400x, 1000x 	1	



		<ul style="list-style-type: none"> - Camera: HS-2D; Megapixel eyepiece USB camera compatible with Windows 10, 8, 7, Vista, XP (32 & 64 bit). Includes software. Captures images 2048 x 1536. - At least one (1) year warranty. 		
7	set	Gel Electrophoresis <ul style="list-style-type: none"> - must have gel trays, combs, casting stand, gel tank and digital power supply - sample size: more than 100 samples - runs 6x6 cm to 12.5x12cm gels - with timer: 0 -99 hours, or continuous, audible alert - gel capacity: 2 large (12.5 x 12 cm), 2 small (12.5 x 6 cm), micro (6 x 6 cm) - program memory - control of set voltage, amperage and time - electrical: universal - At least one (1) year warranty. 	1	
8	unit	Blue light transilluminator <ul style="list-style-type: none"> - LED source: Blue LED - Emission Max: 470 nm - Instrument dimensions (L x W x H): 32.5 × 19.5 × 6.5 cm (12.8 × 7.7 × 2.6 in) - Viewing surface dimensions (19 × 19 cm (7.5 × 7.5 in) - At least one (1) year warranty. 	1	
9	unit	Vortex Mixer <ul style="list-style-type: none"> - max speed is 3,500 rpm - mixing and vortexing radius is 1.5 mm - mixing frequency is 300 - 3,000 rpm - timer: 15 s – 99.3 h, continuous - noise level: <50 dB(A) - power supply: 230V, 50 - 60 Hz - max power consumption: 40W - dimensions (DXWXH): 17.0 × 23.0 × 13.0 cm / 6.7 × 9.1 × 5.1 in - At least one (1) year warranty. 	1	
10	unit	Dry Bath Incubator <ul style="list-style-type: none"> - Microprocessor control with digital performance for precise, accurate control - Unit Dimensions (W x L x H) 200 x 290 x 80mm - User temperature calibration - Molded aluminum alloy chamber - Temperature Control Range 5° C above ambient to 150° C - At least one (1) year warranty. 	1	
11	unit	Freezer (-20 °C) <ul style="list-style-type: none"> - minimum storage temperature: -20 ~ -25°C - max capacity: 350 L - External dimensions (width * depth * height) mm: 810*735*1960 - Internal dimensions (width * depth * height) mm: (650*570*627)*2 - with over-temperature alarm function - At least one (1) year warranty. 	1	
12	unit	Distillator <ul style="list-style-type: none"> - bench top - output: ASTM Type 1 water - At least one (1) year warranty. 	1	



Lot No. 3

Item No.	Unit	ITEM DESCRIPTION	Qty	Unit Cost
3	Lot	Supply and Delivery of Technical and Musical Equipment	1	1,000,000.00
1	unit	Bass Amplifier *165 watts; solid state bass amp; onboard compressor/limiter; 7 band graphic EQ	2	
2	unit	Keyboard Amplifier *for all instruments (bass. G not advisable); 150 watts; 5 channels	2	
3	set	Professional CPR Mannequin Family Pack *One (1) Adult Medium Skin Mannequin (with CPR Monitor); One (1) Child Medium Skin Mannequin (with CPR Monitor); One (1) Infant Medium Skin Mannequin (with CPR Monitor) *with 10 Adult Face-Shield Lung Bags, 10 Child Face-Shield Lung Bags and 10 Infant Face-Shield Lung Bags, an Instruction Sheet and a nylon carrying case *All mannequins come with Light Indicator and Audible Clicker	2	
4	roll	BWF Approved PVC Floor Carpet Synthetic Badminton Shuttle Court Flooring Mat Roll Size: 15m × 1.8m Thickness:4.5mm,4.8mm, 5.0mm,5.5mm 7.0mm Thickness of wear-resisting layer: 1.0mm-1.8mm Color: green/blue Surface Pattern: Crystal sand Surface Treatment: High super-durable anti-slip wear layer Usage: Badminton court Layers: 7.0mm/5.5mm/5.0mm/4.8mm/4,5mm thick high-durable anti-slip crystal-surfaced layer Compound high-strength polyester mesh stable layer Compound glass fiber mesh anti-shrink layer Double-foaming buffer layer with high density	2	
5	set	Folding Table Tennis Table 15mm For Indoor Use Field of use: IndoorAssembled: Semi assembled, approx 15 minutes to be ready. Table top: 15 mm Net set: Included Net weight: 66 kg Gross weight: 70 kg Frame size: 15 x 30 mm Thickness 1.2mm Leg Size : Square Tubular Profile 20 x 30 mm & 30 x 30 mm Heavy Duty Wheels : Size 50mm Diameter All 8 maneuverable wheels (4 with brakes)	2	



6	unit	<p>Drone quadcopter with 24-48mm optical zoom camera video UAV 12MP 1/2. 3" Cmos sensor (US version)</p> <p>Features & details</p> <ul style="list-style-type: none"> • 1/2.3-inch 12MP sensor with up to 4x zoom, including a 2x optical zoom (24–48 mm) • Up to 31 minutes flight time, 44 mph max speed, 905G takeoff weight, 3-axis gimbal for steady shots, 8GB internal storage, SD card Support up to 128 GB • Functions include ActiveTrack 2. 0, Omnidirectional Obstacle Sensing, Hyperlapse, Low-Noise Design, Adjustable Aperture, HDR Photos, Dolly Zoom • 135 minutes of battery life on a full charge. 	2	
7	unit	<p>3-Axis Gimbal Stabilizer for DSLR & Mirrorless Cameras</p> <p>Rotatable Angle : Tilt 230° ; Roll 360° (Unlimited); Pan 360° (Unlimited)</p> <p>Working Modes : Panning Mode(HF); Follow Mode(TF); Lock Mode(LK); All Follow Mode (AF)</p> <p>Controllable Range : Tilt +175° to -55°; Roll: ±30° (when controlled by Horizontal Adjustment Button) 360° (when parallel to the ground, and works in full follow mode, it could be controlled to rotate 360° by joystick)Pan: 360° (unlimited)</p> <p>Usage Time : 12 hours (When camera is balanced with gimbal)</p> <p>Charging Time : ≥5 hours by the charger provided and the adapter 5V/3A.</p>	2	
8	unit	<p>D’Jembe: (African Percussion)</p> <ul style="list-style-type: none"> - 12" Skin head - Thai mango wood shell - Tera cotta finish - non-stretch adjustable rope for tuning <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 	2	



		<ul style="list-style-type: none"> - 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. - 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. - 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 reserves 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. 		
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Other Requirements:

- Power supply: 220 V
- On warranty and after sales support, ALL delivered items should have one (1) year warranty on parts and labor
- Bidder/Supplier should have authority to distribute the product by Original Manufacturing Company.
- The bidder must submit the original brochure or actual image of ALL deliverables including specifications during bid submission.



Republic of the Philippines


DEPARTMENT OF SCIENCE AND TECHNOLOGY

PHILIPPINE SCIENCE HIGH SCHOOL – Zamboanga Peninsula Region Campus

- If the supplied equipment is found defective and needs to be pulled-out, the contractor shall provide replacement with the same or higher specifications.
- Render support services to PSHS-ZRC within the warranty period as follows:
 - a. Technical support will be provided through phone calls or email within regular working hours from Monday to Friday, 8:00AM to 5:00PM
 - b. If the supplied equipment is found defective and needs to be pulled-out, the contractor shall provide replacement with the same or higher specifications.
 - c. Rectify and or/replace any part that fails to pass any test/inspection or make alteration necessary to meet the specification.

Prepared by:


GIL M. BARCERA
SST for English


LEIRA RUTH A. FULGUERAS
SST for Chemistry


JILL DARYL F. CARDENO
SST for English


JOHN PIERCE O. ALINTANA
SST for Earth Science


RONALD ALAN P. TANGCAY
SST for Music


KIMBER CELICIOUS
SRA

Certified Funds Available:


CONNIE GRACE B. BALINGIT
Budget Officer


JANE ROSARIE B. SIONG
Accountant II

Recommending Approval:


LEE CASTOR I. CANONO
Chief, Curriculum, and Instruction Division


HAZEL R. LAGAPA
Chief, Student Services Division


MILO S. SALDON
Chief, Finance and Administrative Division

Approved:


ENGR. LOUIE C. JAMORA
Director III