

Section VI. Schedule of Requirements

The delivery schedule expressed in calendar days stipulates hereafter a delivery date which is the date of delivery to the designated Innovation Centers of the regions (attached as **Annex B**), as well as the distribution list attached as **Annex C**.

Lot No.	Description	Delivery
1	HVAC-R Equipment	Within ninety (90) calendar days upon receipt of Notice to Proceed
2	Electrical Technology	
3	Internet of Things	
4	Smart Refrigeration and Air-Conditioning	
5	Electrical Generator	
6	CNC Machining Equipment/Attachment	
7	Welding Machine	
8	Fabrication Machines/Equipment	
9	Computers	

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DELIVERY ADDRESS PER INNOVATION CENTER

Region	Delivery Address
VII	Regional Training Center - Cebu (VII), Archbishop Reyes Ave., cor. Salinas Drive, Lahug Cebu City, 6000
VIII	Balicutro College of Arts and Trades, Sabang Zone II, Allen, Northern Samar
IX	Zamboanga Sibugay Polytechnic Institute, Poblacion, Kabasalan, Zamboanga Sibugay

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DISTRIBUTION MATRIX				
Lot No.	Lot	VII	VIII	IX
1	HVAC-R Equipment		✓	
2	Electrical Technology		✓	
3	Internet of Things		✓	
4	Smart Refrigeration and Air-Conditioning		✓	
5	Electrical Generator		✓	✓
6	CNC Machining Equipment/ Attachment	✓		✓
7	Welding Machine	✓	✓	✓
8	Fabrication Machines/ Equipment	✓	✓	✓
9	Computers	✓	✓	✓

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Section VII. Technical Specifications

Technical Specifications

Lot 1 : HVAC-R Equipment

APPROVED BUDGET FOR THE CONTRACT : Twelve Million Eight Hundred Sixty-Nine Thousand Four Hundred Sixty-Seven Pesos and 21/100 (P12,869,467.21)

No.	Item	Agency Specifications	Qty	Unit	Statement of Compliance*	Make Brand / Model	Reference
1	Commercial Air-Conditioning Trainer - Water Chiller Type with Water Cooled Condenser	Kindly refer to the technical specifications attached as Annex D.	1	set			
2	VRV Air-Conditioning Trainer		1	set			
3	Centrifugal Fan and Air Ducting Trainer		1	set			
4	Gauge Manifold		20	pc			
5	Digital VOM/Multi-tester		20	pc			
6	Digital Clamp Ammeter		20	pc			
7	Vacuum pump		15	unit			
8	HVAC Single Cylinder Refrigerant Recycling and Recovery machine		15	set			
9	Refrigerant Charging Meter		15	unit			
10	Insulation tester		15	unit			
11	Anemometer		10	unit			
12	Phase sequence meter		14	unit			
13	Infrared thermometer		15	unit			
14	Salinity tester		15	unit			
15	Flaring with Swaging Tools Set		25	set			
16	Tube Cutter		25	pc			
17	Digital Vernier Caliper		20	pc			
18	Digital Micrometer Caliper		20	pc			
19	Combination Wrench Set		20	set			
20	Socket Wrench		20	set			
21	Screw Driver Set		20	set			
22	Allen Wrench Set		20	set			
23	Combination Pliers		20	pc			
24	Long Nose Plier		20	pc			
25	Diagonal Cutting Plier		20	pc			
26	Adjustable Wrench		20	pc			
27	Hacksaw with Blade		15	set			
28	Tap and Dies Set		15	set			

No.	Item	Agency Specifications	Qty	Unit	Statement of Compliance*	Make Brand / Model	Reference
29	Pull-Push Rule	Kindly refer to the technical specifications attached as Annex C.	15	pc			
30	Spirit Level Bar		15	pc			
31	Steel Square		15	pc			
32	Try Square		15	pc			
33	Combination Square		15	pc			
34	Angle Grinder		20	unit			
35	Portable hand drill		20	unit			

* Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.

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**Summary per Lot and Technical Specification
Procurement of Learning Systems for Three (3) Existing Innovation Centers of TESDA**

ANNEX D

Lot/ Item No.	Code	Technology Area/ Learning System	Agency Specification	Classification	Test Parameters (Post Evaluation)	Test Parameters (Inspection and Acceptance)	Onsite Warranty (Parts and Service)	with Training	with Manual	Qty per Lot	Unit
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
1	08-000	HVAC-R Equipment									
1	08-002	Commercial Air-conditioning Trainer- Water Chiller Type with Water Cooled Condenser	refer to Technical Specification of Item Code 08-002	Learning System	refer to Technical Specification of Item Code 08-002	refer to Technical Specification of Item Code 08-002	1 Year	Yes	Yes	1	set
2	08-003	VRV Air-Conditioning Trainer	refer to Technical Specification of Item Code 08-003	Learning System	refer to Technical Specification of Item Code 08-003	refer to Technical Specification of Item Code 08-003	1 Year	Yes	Yes	1	set
3	08-004	Centrifugal Fan and Air Ducting Trainer	refer to Technical Specification of Item Code 08-004	Learning System	refer to Technical Specification of Item Code 08-004	refer to Technical Specification of Item Code 08-004	1 Year	Yes	Yes	1	set
4	16-006	Gauge Manifold	<ul style="list-style-type: none"> • 2 valves • Three (3) hoses • high side gauge pressure: 0-500 psig • low side gauge pressure: 30 in Hg vacuum - 250 psig • For refrigerants R-22 and R-134-a • Hose length: 36 inches • 2,500 psig burst 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	Yes	Yes	20	pc
5	16-007	Digital VOM/Multi-tester	<p>Measurement ranges:</p> <ul style="list-style-type: none"> - DC Voltage: 400mv~1000V - AC Voltage: 4~750V - DC Current: 40uA~20A - AC Current: 40uA~20A - Resistance: 40Ohm~40MOhm or higher - Display count: 4000~6000 counts <p>Features:</p> <ul style="list-style-type: none"> - hFE - Diode Test - Continuity Test - True RMS - Data Hold - Backlighted - Rubber and plastic material - Manual/Automatic range selection <p>Accessories:</p> <ul style="list-style-type: none"> - 1 pair of measuring probes - battery/batteries 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - Accuracy testing using two other Digital VOM, actual readout should be within $\pm 2\%$ of the readout of the two Digital VOM. The two digital VOM should be provided by the IAC. 	1 Year	Yes	Yes	20	pc

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Lot/ Item No.	Code	Technology Area/ Learning System	Agency Specification	Classification	Test Parameters (Post Evaluation)	Test Parameters (Inspection and Acceptance)	Onsite Warranty (Parts and Service)	with Training	with Manual	Qty per Lot	Unit
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
6	16-009	Digital Clamp Ammeter	<ul style="list-style-type: none"> Clamp Diameter: 30mm 600 Ampere AC Current: 60/600A AC Voltage: 0.1 - 600 V DC Voltage: 0.1 - 600 V Resistance: 0.1Ω to 1000Ω Size/ Mass: H187 x W50 x D29mm/ 210g Approximate: ± 5mm tolerance Accessories: - 1 pair of measuring probes - battery/batteries	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> Checking the conformity with the quantity including parts and accessories Checking the conformity of hardware vis-a-vis offered specifications Functionality testing Accuracy testing using two other Digital Clamp Ammeter, actual readout should be within +2% of the readout of the two Digital Clamp Ammeter. The two Digital Clamp Ammeter should be provided by the IAC. 	1 Year	Yes	Yes	20	pc
7	16-010	Vacuum pump	220 V, 60Hz, 5-10 Cfm, 2-Stage, 40 microns, 1/4 to 3/4 hp	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> Checking the conformity with the quantity including parts and accessories Checking the conformity of hardware vis-a-vis offered specifications Functionality testing 	1 Year	Yes	Yes	15	unit
8	16-011	HVAC Single Cylinder Refrigerant Recycling and Recovery Machine	220V, 60HZ, 1Hp motor, Refrigerant: CFC, HCFC, HFC	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> Checking the conformity with the quantity including parts and accessories Checking the conformity of hardware vis-a-vis offered specifications Functionality testing 	1 Year	Yes	Yes	15	set
9	16-013	Refrigerant Charging Meter	Weighing range: 100kg Power: DC9V/AC 220V	Tools	Brochure with picture and data sheet	Brochure with picture and data sheet	1 Year	Yes	Yes	15	unit
10	16-014	Insulation tester	Digital Testing voltage: 5KV Power supply 220V, 60 Hz Operating temperature: -10~40°C Measuring Range: 0.1M-200GΩ Accessories: - 1 pair of measuring probes - battery/batteries	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> Checking the conformity with the quantity including parts and accessories Checking the conformity of hardware vis-a-vis offered specifications Functionality testing 	1 Year	Yes	Yes	15	unit
11	16-015	Anemometer	Digital Measuring range: 0.4-30m/s Power supply: 9V	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> Checking the conformity with the quantity including parts and accessories Checking the conformity of hardware vis-a-vis offered specifications Functionality testing 	1 Year	Yes	Yes	10	unit

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
12	16-016	Phase sequence meter	Digital 3phase AC current: 0-20A AC Voltage: 0-600V	Tools	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing	1 Year	Yes	Yes	14	unit
13	16-017	Infrared thermometer	Temperature range: at least -20°C-350°C Distance to measurement spot size: 50:1 Best Accuracy: ±1 % Resolution: 0.1 °C with data storage	Tools	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing	1 Year	Yes	Yes	15	unit
14	16-018	Salinity tester	Range:0.00-14.00 pH; EC: 0-19990uS/cm; TDS: 0-19999ppm; 10.1-200ppt; 0-25% Accuracy:0.01-5.00% (±0.1%) 5.10-25.00%(±1%) Resolution:0.01 pH	Tools	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing	1 Year	Yes	Yes	15	unit
15	16-002	Flaring with Swaging Tools Set	• Screw type feed • Two bars cover 9 sizes • Swivel type swaging adapters and Flaring cone hardened steel, chromed finished • Slip on forge steel yoke includes: - Flares 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" OD • Five (5) swage adapter for tubes sizes: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" OD	Tools	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing	1 Year	Yes	Yes	25	set
16	16-003	Tube Cutter	• Heavy duty • For 1/8 inch to 1 1/8 inches pipe • Dimension: 6.8 x 3.3 x 1.3 inches • Materials: High strength zinc alloy • with spare cutter wheel on the knob	Tools	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing	1 Year	Yes	Yes	25	pc
17	15-001	Digital Vernier Caliper	• Stainless steel • Dual reading scales on Vernier (English reading on top and Metric reading at bottom) • (6 inches) 150 mm • Least Count = 0.02 mm	Measuring Instruments	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - Accuracy Testing	1 Year	N/A	Yes	20	pc

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
18	15-002	Digital Micrometer Caliper	<ul style="list-style-type: none"> LCD Digimatic Resolution: 0.001mm Range: 0-25 mm with English metric conversion 	Measuring Instruments	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - Accuracy testing 	1 Year	N/A	Yes	20	pc
19	15-003	Combination Wrench Set	<ul style="list-style-type: none"> 16 pcs sizes: 6mm, 8mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 17mm, 19mm, 21mm, 22mm, 24mm, 27mm, 30mm and 32mm Drop forged alloy or chrome vanadium steel construction Lobular box end design 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - 6 feet drop on concrete test, ten times, the item should not break/deform. Scratch or kink (not bigger than 2mm diameter) on the surface of the item is still acceptable (1 sample) 	1 Year	N/A	N/A	20	set
20	15-004	Socket Wrench	<ul style="list-style-type: none"> Chrome Vanadium Steel (Cr-V) Drive: 1/2" Socket points: 6 points Socket size: Metric 18 pcs Socket: 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 27, 30, 32 mm Ratchet Handle: 250 mm (±5mm) Swivel/ Power Handle: 380 mm (±5mm) Sliding T-Handle: 300 mm (±5mm) Universal Joint: 70 mm (±5mm) Extension bar length: 250 mm (±5mm) Extension bar length: 125 mm (±5mm) With case 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	20	set
21	15-006	Screw Driver Set	<ul style="list-style-type: none"> 4 pieces per set Flat Blade Tip Screw Driver: <ul style="list-style-type: none"> 6X150mm 5X100mm Phillips Blade tip Screw Driver: <ul style="list-style-type: none"> 5X100mm 6X150mm Plastic and rubberized handle Chrome Vanadium 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - 6 feet drop on concrete test, head first, ten times, the head of the item should not break/deform. Scratch or kink on the shaft/handle of the item is still acceptable. (1 sample) 	1 Year	N/A	N/A	20	set
22	15-007	Allen Wrench Set	<ul style="list-style-type: none"> 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 4.0 mm, 5.0 mm, 6.0 mm, 8.0 mm, 10 mm 5" (+/- 2%) length Chrome Vanadium steel 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications 	1 Year	N/A	N/A	20	set

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
23	15-008	Combination Pliers	<ul style="list-style-type: none"> Overall length: 8", Steel Alloy Handle finish: Ergonomic grip rubberized/plastic cushion 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - 6 feet drop on concrete test, head first, ten times, the head of the item should not break/deform. Scratch or kink on the shaft/handle of the item is still acceptable.(1 sample) 	1 Year	N/A	N/A	20	pc
24	15-009	Long Nose Plier	<ul style="list-style-type: none"> Overall Length: 8" ±1/2" Material: Carbon steel /alloy steel/ chrome Handle Finish: Ergonomic grip rubberized/plastic cushion 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - 6 feet drop on concrete test, head first, ten times, the head of the item should not break/deform. Scratch or kink on the shaft/handle of the item is still acceptable. (1 sample) 	1 Year	N/A	N/A	20	pc
25	15-011	Diagonal Cutting Plier	<ul style="list-style-type: none"> Overall Length: 8" ±1/2" Material: Carbon Steel Handle Finish: Ergonomic grip rubberized/plastic cushion 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing - 6 feet drop on concrete test, head first, ten times, the head of the item should not break/deform. Scratch or kink on the shaft/handle of the item is still acceptable. (1 sample) 	1 Year	N/A	N/A	20	pc
26	15-012	Adjustable Wrench	<ul style="list-style-type: none"> 10 inches (254 mm) length Forged heat-treated alloy steel Chrome/ Alloy steel 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	20	pc
27	15-013	Hacksaw with Blade	<ul style="list-style-type: none"> Adjustable aluminum alloy frame with grip handle 90° adjustable blade angle 12 inches bi-metal hacksaw blade 24 TPI 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	15	set

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
28	15-016	Tap and Dies Set	<ul style="list-style-type: none"> Alloy Steel Metric 20 pcs Threads Sizes: M3 x 0.5, M4 x 0.7, M5 x 0.8, M6 x 1.0, M7 x 1.0, M8 x 1.25, M9 x 1.25, M10 x 1.5, M12 x 1.75 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	15	set
29	15-019	Pull-Push Rule	<ul style="list-style-type: none"> Measuring standard: Metric & English Blade length: 8 m Blade width: Min. 25 mm (1") High impact ABS case with rubber coated 	Measuring Instruments	Brochure with picture and data sheet	Brochure with picture and data sheet	1 Year	N/A	N/A	15	pc
30	15-020	Spirit Level Bar	<ul style="list-style-type: none"> Aluminum frame Non Magnetic 3 vials 36" length 	Measuring Instruments	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	15	pc
31	15-021	Steel Square	<ul style="list-style-type: none"> Carpenter's framing square: 50.8mm x 406.4mm x 609.6mm (2"x16"x24") Steel Engraved Metric and English Graduation 	Measuring Instruments	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	15	pc
32	15-024	Try Square	<ul style="list-style-type: none"> Size: 8" x 12" Thickness: 1.8-2 mm Material: Spring Steel Handle Material: Aluminum Alloy Engrave Metric and English Graduations 	Measuring Instruments	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	15	pc
33	15-026	Combination Square	<ul style="list-style-type: none"> Stainless Steel (12 inches) 300 mm Combination Square Set (Blade and Handle) 	Measuring Instruments	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	N/A	N/A	15	pc
34	15-028	Angle Grinder	<ul style="list-style-type: none"> Portable 4" capacity Input Voltage: 220-240V, 50-60Hz 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	Yes	Yes	20	unit
35	15-029	Portable hand drill	<ul style="list-style-type: none"> Input Power: 500W-850W Input Voltage: 220-240V, 50-60Hz No load speed: 0-380/1300rpm 	Tools	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	Yes	Yes	20	unit

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TECHNICAL SPECIFICATION

Name of The Learning System	Commercial Air-Conditioning Trainer - Water Chiller Type with Water Cooled Condenser
Item Code	08-002
Technology Area(s)	Heating, Ventilation and Air-Conditioning

Required Topics/Lessons:

Mock-up that will allow learners to simulate the following:

- Familiarization and operational functions of water chiller refrigeration system components.
- Evacuating and charging water chiller refrigeration system.
- Measurement of refrigerant pressures, temperatures and flow rate.
- Observation of thermostatic expansion valve and capillary tubes performance for water chiller system.
- Understanding and plotting thermodynamic cycle in pressure-enthalpy diagram
- Calculate the refrigeration capacity from the p-h diagram
- Calculate the coefficient of performance.
- Loads variation on water chiller system
- Controlling chilled water temperature in the water chiller system.

Hardware:

- 2HP-5HP Commercial Air-Conditioning Trainer - Water Chiller Type with the following components:
 - Indoor Air Handling Unit (AHU)
 - Heat Exchanger (water type)
 - Fan and Controls
 - Liquid to Liquid Heat Exchanger Condenser
 - High Pressure switch
 - Low pressure switch
 - Thermal expansion valve (TXV)
 - Water Flow Meter
 - Water Pressure Gauges
 - Thermostat
 - Filter/drier
 - Refrigerant Pressure Gauges
 - Hand valves
 - Water cooling tower
 - Water Pumps and connections
 - Instrument Control Panel with Voltmeter and Ammeter
 - Maintenance spare part and consumables
 - Electrical circuit Panel

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Specification of all sub-components will depend on the engineering design of the air-conditioning trainer as a system.

- Three Phase 220VAC, 60Hz
- Dimension: The equipment when installed should not consume more than 6sqm space and not over 1.9m for the overall height.

Training:

The winning bidder shall provide at least three (3) days training for this learning system. The training will cover the following topics:

- Configuration, set-up and maintenance of the training equipment
- Utilization of the training equipment and walkthrough with the learning activities associated with the training equipment.

The beneficiary TTI will cover the costs of the training venue, snacks and meals during training while the supplier will cover all other costs such as, but not limited to:

- Honoraria of the trainer;
- Accommodation of the trainer;
- Supplies and materials required for the training;
- Reproduction of the learning materials

Other requirements:

Requirements	Printed copy	Digital copy
• Includes instructional video covering topics indicated in this specification		X
• Quizzes and test(s) with key to corrections	X	X
• Presentation materials covering all topics in this specification	X	X
• Equipment service and operation manual	X	X

All materials are in English language

Post Evaluation Parameter(s):

- Brochure/catalog with picture of equipment
- Technical data sheet
- Curriculum/outline of learning activities with description
- Teaching aids, which may include, reading materials, activity sheets and/or video. The supplier either can provide these materials in digital format using secured access or printed form.

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder **Signature over Printed Name of Authorized Representative** **Date**

Inspection and Acceptance Parameters:

- Checking the conformity with the quantity including parts and accessories
- Checking the conformity of hardware vis-a-vis offered specifications
- Checking of teaching aids vis-a-vis listed course outline
- Functionality testing
- Commissioning and training

Sample Image:



Picture for reference only

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder Signature over Printed Name of Authorized Representative Date

TECHNICAL SPECIFICATION

Name of The Learning System	VRV Air-Conditioning Trainer
Item Code	08-003
Technology Area(s)	Heating, Ventilation and Air-Conditioning

Required Topics/Lessons:

Mock-up that will allow learners to simulate the following:

- Electrical circuit connection
- Familiarization with Variable Refrigerant Volume (VRV) Air Conditioning components
- Familiarization with Variable Refrigerant Volume (VRV) Air Conditioning cycle
- Plotting Refrigeration Cycle into Pressure-Enthalpy (P-H) Diagram
- System Performances Analysis: Refrigeration Capacity, Coefficient of Performance and Compression Ratio
- Effect of Varying Load
- Troubleshooting Exercises on System Electrical Circuit and Components: High-pressure switch, Air thermistor, Discharge thermistor, Low-pressure sensor, Indoor fan motor, Gas thermistor, Fuse control board, Float switch, etc.

Hardware:

- VRV Air-conditioner training trainer with the following specification and components:
 - Indoor Unit (Ceiling Cassette, Wall Mounted, Floor Standing)
 - Outdoor Unit 3HP-5HP
 - Expansion Valve
 - Refrigerant Pressure Gauges
 - High pressure gauge w/ sensor
 - Low pressure switch w/ sensor
 - Control Panel w/ Ampere meter, volt meter
 - Sight Glass
 - Filter/drier
 - Hand valve
 - Oil Separator
 - Remote control
 - Reversing Valve for reverse cycling heating

Specification of all sub-components will depend on the engineering design of the air-conditioning trainer as a system.

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date



- Three Phase 220VAC, 60Hz
- Dimension: The equipment when installed should not consume more than 6sqm space and not over 1.9m for the overall height.

Other Equipment & Accessories:

- Flow meter for viewing the flow rate of the refrigerant.
- Electronic interactive fault insertion system with test points: featuring silk-screened diagram of the electrical circuit with LED display of the fault locations and electrical test points at strategic locations. The system includes 10 faults, which are electronically activated with Micro Switch and can be instantly reset. LED displays can be switched off for student testing.
- Multi point digital temperature meter with 10 sensors/thermocouples
- Watt meter, digital, panel mounted type, three phase

Training:

The winning bidder shall provide at least three (3) days training for this learning system. The training will cover the following topics:

- Configuration, set-up and maintenance of the training equipment
- Utilization of the training equipment and walkthrough with the learning activities associated with the training equipment.

The beneficiary TTI will cover the costs of the training venue, snacks and meals during training while the supplier will cover all other costs such as, but not limited to:

- Honoraria of the trainer;
- Accommodation of the trainer;
- Supplies and materials required for the training;
- Reproduction of the learning materials

Other requirements:

Requirements	Printed copy	Digital copy
• Includes instructional video covering topics indicated in this specification		X
• Includes Instruction to learning exercises	X	X
• Quizzes and test(s) with key to corrections	X	X
• Presentation materials covering all topics in this specification	X	X
• Equipment service and operation manual	X	X

All materials are in English language

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder **Signature over Printed Name of Authorized Representative** **Date**

Post Evaluation Parameter(s):

- Brochure/catalog with picture of equipment
- Technical data sheet
- Curriculum/outline of learning activities with description
- Teaching aids, which may include, reading materials, activity sheets and/or video. The supplier either can provide these materials in digital format using secured access or printed form.

Inspection and Acceptance Parameters:

- Checking the conformity with the quantity including parts and accessories
- Checking the conformity of hardware vis-a-vis offered specifications
- Checking of teaching aids vis-a-vis listed course outline
- Functionality testing
- Commissioning and training

Sample Image:



Picture for reference only

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date



TECHNICAL SPECIFICATION

Name of The Learning System	Centrifugal Fan and Air Ducting Trainer
Item Code	08-004
Technology Area(s)	Heating, Ventilation and Air-Conditioning

Required Topics/Lessons:

- Examination of typical components, fabrication, installation and assembly techniques used in air handling systems.
- Investigation of pressure losses in bends, branches, changes of section and over straight lengths of duct, together with the variation in pressure drop with velocity.
- Determination of the 'k' factor for the pressure loss of the above components in each particular configuration.
- Investigation of the fan pressure and volume flow characteristics at various fan speeds (a simulation of supply voltage influence to fan performance).
- Examination of standard types of panel and bag filters and their pressure drop against face velocity.
- Measurement of airflow rate using pitot-static traverse, orifice pressure differential and anemometer methods.
- Balancing of airflow distribution in a series or two-branch parallel distribution system using either main damper or fan speed flow control.
- Allows an additional parallel branch and two diffusers to be investigated.
- Allows an additional tee branch and two diffusers to be investigated.
- Carry out commissioning leak testing on all of the above components.

Hardware:

Centrifugal Fan and Air Ducting Trainer with the following specification and components:

- Trainer Configuration
 - The system has a multipurpose centrifugal fan;
 - Air duct unit made of powder coated steel with internal insulation mounted on a trolley;
 - Includes test points for air pressure, airflow, temperature and humidity along the duct.
 - There should be a system to inject/simulate steam humidity, heat and variable air speed.
 - There should be a chamber into which different types of heating or cooling elements and filters may be introduced

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

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Authorized Representative

Date

- Ducting Joints, Diffusers and Filters
 - Set of 3 types of basic ducting joints such as "Y", 90-degree offset,
 - Set of 4 additional types of ducting joints.
 - Set of 3 types of basic diffusers
 - Set of 3 types of filter elements.
 - Additional parallel branch set with 2 diffusers
 - Additional T branch set with 2 diffusers
 - 3 x 2 meter length duct extensions (6m total)

- Measuring Instruments
 - Air flow velocity meter, vane anemometer type
 - Pitot tube and manometer for measurement of air flow
 - Digital temperature meter, single probe
 - Control console including voltmeter, ammeter, ON/OFF controls, ELCB and miniature circuit breaker. Console can also accommodate variable speed control for fan speed control

- Accessories:
 - Variable speed control for the centrifugal fan.
 - System for cooling simulation
 - System for heating simulation
 - Steam generator for steam simulation

Specification of all sub-components and accessories will depend on the engineering design of the trainer as a system.

- System power: Three Phase 220VAC, 60Hz
- Dimension: The equipment when installed should not consume more than 8 sqm space and not over 1.9m for the overall height.

Training:

The winning bidder shall provide at least three (3) days training for this learning system. The training will cover the following topics:

- Configuration, set-up and maintenance of the training equipment
- Utilization of the training equipment and walkthrough with the learning activities associated with the training equipment.

The beneficiary TTI will cover the costs of the training venue, snacks and meals during training while the supplier will cover all other costs such as, but not limited to:

- Honoraria of the trainer;
- Accommodation of the trainer;
- Supplies and materials required for the training;
- Reproduction of the learning materials

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date



Other requirements:

Requirements	Printed copy	Digital copy
• Includes instructional video covering topics indicated in this specification		X
• Includes Instruction to learning exercises	X	X
• Quizzes and test(s) with key to corrections	X	X
• Presentation materials covering all topics in this specification	X	X
• Equipment service and operation manual	X	X

All materials are in English language

Post Evaluation Parameter(s):

- Brochure/catalog with picture of equipment
- Technical data sheet
- Curriculum/outline of learning activities with description
- Teaching aids, which may include, reading materials, activity sheets and/or video. The supplier either can provide these materials in digital format using secured access or printed form.

Inspection and Acceptance Parameters:

- Checking the conformity with the quantity including parts and accessories
- Checking the conformity of hardware vis-a-vis offered specifications
- Checking of teaching aids vis-a-vis listed course outline
- Functionality testing
- Commissioning and training

Sample Image:



Picture for reference only

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

Lot 2 : Electrical Technology

APPROVED BUDGET FOR THE CONTRACT : One Million Two Hundred Eighty-Four Thousand One Hundred Eighty-Seven Pesos and 98/100 (P1,284,187.98)

No.	Item	Agency Specifications	Qty	Unit	Statement of Compliance*	Make Brand / Model	Reference
1	Motor Control Trainer	Kindly refer to the technical specifications attached as Annex E .	2	set			

* Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

**Summary per Lot and Technical Specification
Procurement of Learning Systems for Three (3) Existing Innovation Centers of TESDA**

ANNEX E

Lot/ Item No.	Code	Technology Area/ Learning System	Agency Specification	Classification	Test Parameters (Post Evaluation)	Test Parameters (Inspection and Acceptance)	Onsite Warranty (Parts and Service)	with Training	with Manual	Qty per Lot	Unit
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
2	10-000	Electrical Technology									
1	10-001	Motor control trainer	refer to Technical Specification of Item Code 08-005	Learning System	refer to Technical Specification of Item Code 10-001	refer to Technical Specification of Item Code 10-001	1 Year	Yes	Yes	2	set

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

TECHNICAL SPECIFICATION

Name of The Learning System	Motor Control Trainer
Item Code	10-001
Technology Area(s)	Electrical Technology

Brief Description:

This learning system will develop the learner's ability to apply control technology using various types of magnetic contactors, electromechanical and electronic switches both in AC and DC circuits.

Required Topics/Lessons:

Specifically, this learning system will cover the following topics:

- Starting DC Motor with Manual Starter
- Starting DC Motor with Motor Control Switch / Cam Switch
- Starting DC Motor with Selector Switch and Resistance
- Starting DC Motor with Time Delay
- Starting DC Motor with Push Button and Magnetic Contactor
- DC Motor Braking with Resistance
- Definite Time Brake Control of DC Motor with Magnetic Brake
- Forward and Reverse DC Motor Using Reversing Starter
- Forward and Reverse DC Motor Using Magnetic Contactor
- DC Motor Control from Two Locations
- Start-Stop-Jog DC Motor
- Counter of EMF Starting Of DC Motor
- Direct On Line Starting Of Single Phase Induction Motor Using DPDT Toggle Switch
- Direct On Line Starting Of Single Phase Induction Motor Using Manual Starter
- Direct On Line Starting Of Single Phase Induction Motor Using Motor Control Switch
- Start-Stop-Jog Single Phase Induction Motor
- Forward and Reverse Single Phase Induction Motor Using Magnetic Contactor
- Forward and Reverse Three Phase Induction Motor Using Reversing Starter
- Forward Reverse Control of a Three Phase Induction Motor Using Mechanical Interlock
- Forward Reverse Control of a Three Phase Induction Motor Using Electrical Interlock
- Forward and Reverse Three Phase Induction Motor Using Both of Interlocking methods
- Primary Resistors Starting Control of a 3 phase Induction Motor
- Autotransformer Starting Control of a 3phase Induction Motor
- Delayed Start Control of Three Phase Induction Motor
- Control of Three Phase Induction Motor Using Limit Switch and Push Button
- Three Phase Induction Motor Control from Two Locations
- Start-Stop-Jog Control of Three Phase Induction Motor
- Digital Logic

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

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Authorized Representative

Date

- Sequence Time Motor Control
- Three Phase Induction Motor Using Control Relay That Controlled by Photoelectric Sensor
- Control of Three Phase Induction Motor Using Inductive Proximity Switch
- Starting Star-Delta Motor with Star Delta Switch
- Starting Star-Delta Motor with Manual Star Delta Starter
- Starting Star-Delta Motor with Automatic Star Delta Starter
- Running Pole Changing Motor (Dahlander) at Low Speed
- Running Pole Changing Motor (Dahlander) at High Speed
- Pole-Changing Circuit
- Start-Stop-Jog Control Circuit with the Magnetic Brake
- Definite Time Brake Control of Pole Changing Motor with Magnetic Brake
- Definite Time DC Motor Starter

Hardware Requirements:

The hardware requirements for this learning system are as follows:

- Device modules:
 - Magnetic Contactor, 3-phase with auxiliary contact NO-NC
 - Single Phase Motor Circuit Breaker
 - Three Phase Motor Circuit Breaker
 - Thermal Overload, 3-phase
 - Phase Failure & Reverse Phase Relay , 3 Phase
 - Temperature Controller Relay
 - Miniature Circuit Breaker, 1-phase, AC
 - Miniature Circuit Breaker, 3-phase, AC
 - Control Transformer 24 VAC
 - Rectifier Module
 - Control Relay 2NO-2NC, 24VAC
 - Control Relay 2NO-2NC, 24VDC
 - Push button NO-NC, set of 2
 - Selector Switch
 - Limit Switch NO-NC
 - Reversing Starter, (for AC application)
 - Reversing Starter, (for DC application)
 - Star-Delta Switch
 - Motor Control Switch, ON-OFF
 - Indicator Lamp, set of 4 lamps, AC
 - Toggle Switch DPDT, set of 2
 - DC Motor Starter/Controller (4 quadrant)
 - Manual Starter for AC motor
 - Manual Starter for DC motor
 - Time Delay
 - Resistor Module (Starting, Braking)
 - DC Power Supply, 0-240 VDC
 - Photo Electric Sensor
 - Proximity Switch
 - Solid State Relay

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date



- DC Compound motor 0.375 kW
- AC Induction motor, 1 ph., 0.375 kW
- AC Induction motor, 3 ph, Dahlander/pole changing, 0.375 kW
- Set of Test Leads
- 2 Level Frame
- 3 Level Frame
- 4 Level Mobile Frame
- Storage Cabinet
- Three Phase 220VAC, 60Hz
- Dimension: The equipment when installed should not consume more than 6sqm space and not over 1.9m for the overall height.

Software Requirements:

This learning system should come with a software with electrical device catalog and can be used to simulate various motor control circuits and application for 26 users with perpetual license.

Training:

The winning bidder shall provide at least three (3) days training for this learning system. The training will cover the following topics:

- Configuration, set-up and maintenance of the training equipment
- Utilization of the training equipment and walkthrough with the learning activities associated with the training equipment.

The beneficiary TTI will cover the costs of the training venue, snacks and meals during training while the supplier will cover all other costs such as, but not limited to:

- Honoraria of the trainer;
- Accommodation of the trainer;
- Supplies and materials required for the training;
- Reproduction of the learning materials

Other requirements:

Requirements	Printed copy	Digital copy
● Includes instructional video covering topics indicated in this specification		X
● Includes simulation software for motor control (single machine)		X
● Includes Instructions to exercises covering the listed lessons with wiring diagram	X	X
● Quizzes and test(s) with key to corrections	X	X

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder **Signature over Printed Name of Authorized Representative** **Date**



Requirements	Printed copy	Digital copy
<ul style="list-style-type: none"> • Presentation materials covering all topics in this specification 	X	X
<ul style="list-style-type: none"> • Equipment service and operation manual 	X	X

All materials are in English language.

Post Evaluation Parameter(s):

- Brochure/catalog with picture of equipment
- Technical data sheet
- Curriculum/outline of learning activities with description
- Teaching aids that may include, reading materials, activity sheets and/or video. The supplier either can provide these materials in digital format using secured access or printed form.

Inspection and Acceptance Parameters:

- Checking the conformity with the quantity including parts and accessories
- Checking the conformity of hardware vis-a-vis offered specifications
- Checking of teaching aids vis-a-vis listed course outline
- Functionality testing
- Commissioning and training

Sample Image:



Picture for reference only

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of Authorized Representative

Date

Lot 3 : Internet of Things

APPROVED BUDGET FOR THE CONTRACT : Three Million Two Hundred Thirty Thousand Five Hundred Fifty Pesos (P3,230,550.00)

No.	Item	Agency Specifications	Qty	Unit	Statement of Compliance*	Make Brand / Model	Reference
1	Smart building system integration and Internet of things technology training equipment	Kindly refer to the technical specifications attached as Annex F .	1	set			

* Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of Authorized Representative

Date

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**Summary per Lot and Technical Specification
Procurement of Learning Systems for Three (3) Existing Innovation Centers of TESDA**

ANNEX F

Lot/ Item No.	Code	Technology Area/ Learning System	Agency Specification	Classification	Test Parameters (Post Evaluation)	Test Parameters (Inspection and Acceptance)	Onsite Warranty (Parts and Service)	with Training	with Manual	Qty per Lot	Unit
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
3	11-000	Internet of Things									
1	11-001	Smart building system integration and Internet of things technology training equipment	refer to Technical Specification of Item Code 08-006	Learning System	refer to Technical Specification of Item Code 11-001	refer to Technical Specification of Item Code 11-001	1 Year	Yes	Yes	1	set

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

TECHNICAL SPECIFICATION

Name of The Learning System	Smart building system integration and Internet of things technology training equipment
Item Code	11-001
Technology Area(s)	Internet of Things

Required Topics/Lessons:

Mock-up that will allow learners to simulate the following:

- System wiring plugging, programming, commissioning, operation, maintenance and repair;
- High-definition coaxial video signal and hard disk recorder connection;
- High-speed dome camera, infrared gun-type camera and monitor and hard disk recorder connection and monitoring;
- Through hard disk recorder control high-speed dome camera PTZ movement and lens action;
- Through hard disk recorder set and adjust the high-speed dome camera PTZ presetting and cruise;
- Dynamic monitoring screen changes and automatic recording of peripheral alarm;
- Passive infrared intrusion detector, active infrared detectors, sound and light alarm and hard disk recorder connection and setting;
- Video monitoring system and the surrounding security system linkage;
- LAN monitoring of network video surveillance management software;
- LonMaker software installation and Plug-in registration;
- Connection of light illumination switch, halogen lamp and the DDC control module and Event Scheduler function module schedule programming;
- Connection of passive infrared detectors, fluorescent lamp and DDC control module and delay programming of Universal Input function module;
- Connection of triple scene button, fluorescent tube and DDC control module and digital logic programming of State Machine function module;
- Connection of emergency switch and DDC control module and analog logic programming of Analog Function module;
- 16.Light intensity sensor detection training based on CAN bus and GSM communication;
- Air quality sensor detection training based on CAN bus and GSM communication;
- Air temperature and humidity sensor testing and training based on CAN bus and GSM communication;
- Soil temperature and humidity sensor testing and training based on CAN bus and GSM communication;
- Carbon dioxide sensor testing and training based on CAN bus and GSM communication;
- PM2.5 detection training based on CAN bus and GSM communication;
- Weight sensor detection training based on CAN bus and GSM communication;
- Flame sensor detection training based on CAN bus and GSM communication;

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

- Human pyroelectric sensor detection training based on CAN bus and GSM communication;
- Security detection training based on CAN bus and GSM communication;
- Electric curtain control training based on CAN bus and GSM communication;
- Lighting control training based on CAN bus and GSM communication;
- Air valve control training based on CAN bus and GSM communication;
- Water valve control training based on CAN bus and GSM communication;
- Plant watering control training based on CAN bus and GSM communication;
- Fish feeding control training based on CAN bus and GSM communication;
- Air purifier control training based on CAN bus and GSM communication;
- Cold and warm fan control training based on CAN bus and GSM communication;
- LCD monitor control training based on CAN bus and GSM communication;
- Electric lock control training based on CAN bus and GSM communication;
- Infrared learning and control training based on WIFI communication;
- PC monitoring training based on CAN bus;
- Android monitoring training based on GSM communication;
- Intelligent household monitoring training based on Wi-Fi communication;
- Integrated monitoring software through the video interface server connect hard disk recorder and monitor screen in real-time;
- Integrated monitoring software through the DDE interface server connect DDC host module and monitor data in real-time;
- Integrated monitoring software through the Internet of Things interface server connect the CAN bus and monitor data in real-time;
- Comprehensive integrated monitoring and management training of SAS, BAS and IOT integrated system based on intelligent building integrated monitoring software.

Hardware:

The equipment should have the following specification and components:

- 1 set Aluminum bracket with brake universal wheel, handle
- 1 set Fireproof board
- 1 pc Electrical box
- 1 pc Protective barrier
- 1 pc 9 inch LCD
- 1 pc detection actuator, Function control circuit board, inductance coil, contactor and relay
- 3 pcs 2P air switch
- 2 pcs leakage protection module
- 1 pc alarm module
- self-reset button
- 1 pc emergency switch
- 1 pc AC220V guide rail three-plug module
- 1 pc AC220V guide rail two-plug module
- 1 pc DC0-30V adjustable switch power
- 1 pc adjustable potentiometer
- 1 pc Four-layer alarm light
- 1 pc 10A safety plug terminal
- 1 pc 5A safety plug terminal
- 1 pc hard disk recorder

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

- 1 pc SATA hard disk
- 1 pc LCD monitor
- 1 pc high speed dome camera
- 1 pc Infrared camera
- 2 pcs self-lock button with DC24V green indicator light (Simulate passive curtain detector and active detector)
- 2 pcs Relay switching circuit board
- 1 pc DC12V buzzer
- 1 pc video monitoring management software
- 1 pc video Monitoring Wireless client software
- 1 pc host monitor module (LonWorks bus DDC)
- 1 pc LON network adapter
- 3 pcs self-lock button with DC24V green indicator light (simulate illuminous switch , passive infrared probe and emergency switch)
- 3 pc self-reset button with DC24V red indicator light
- 4 pcs DC24V yellow indicator light
- 10 pcs Relay switching circuit board
- 1 pc potentiometer (simulate illuminous sensor)
- 1 pc DC voltage adjustment conversion circuit board
- 1 pc DC voltage input transmission digital tube (simulate LED light)
- 1 pc DDC program software Plug-in program (LonMaker3.12)
- 8 pcs Embed host board (ARM)
- 1 pc AC electric, water valve and air valve module
- 1 pc DC digital voltage ammeter
- 1 pc Illuminous sensor and electric curtain module
- 1 pc PM2.5 air quality sensor module
- 1 pc air ,earth temperature and humidity sensor and plant irrigation module
- 1 pc Pyroelectric sensor module
- 1 pc Pet feed and weighing module
- 1 pc fire and carbon dioxide sensor module
- 1 pc security and access control module
- 1 pc CAN communication adapter
- 1 pc Wi-Fi directional infrared controller
- 1 pc wireless router
- 1 pc USB wireless network card
- 1 pc GSM module
- 1 pc Wi-Fi touch screen terminal (Android system)
- 1 pc self-lock button with DC6.3V green indicator light (simulate passive curtain probe)
- 1 pc self-reset button with DC6.3V red indicator light
- 1 pc DC6.3V yellow indicator light
- 1 pc DC6.3V green indicator light
- 1 pc DC6.3V red indicator light
- 1 pc PM2.5 detector simulator (potentiometer A/D transmit, RS232 communication protocol output)
- 1 pc carbon dioxide sensor simulator
- 1 pc pressure transmit simulator
- 1 unit air conditioner, air purifier and TV simulator infrared remote receive)
- 1 pc infrared remote
- 1 pc ARM emulator
- Power input: single phase 220V/60Hz
- AC power output: two route isolation

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

- DC power output: DC5V/2.5A, DC12V/2A DC24V/1.5A Adjustable DC power output: DC0-30V/2A
- Dimension: The equipment when installed should not consume more than 6sqm space and not over 1.9m for the overall height.

Training:

The winning bidder shall provide at least three (3) days training for this learning system. The training will cover the following topics:

- Configuration, set-up and maintenance of the training equipment
- Utilization of the training equipment and walkthrough with the learning activities associated with the training equipment.

The beneficiary TTI will cover the costs of the training venue, snacks and meals during training while the supplier will cover all other costs such as, but not limited to:

- Honoraria of the trainer;
- Accommodation of the trainer;
- Supplies and materials required for the training;
- Reproduction of the learning materials

Other requirements:

Requirements	Printed copy	Digital copy
• Includes instructional video covering topics indicated in this specification		X
• Includes Instruction to learning exercises	X	X
• Quizzes and test(s) with key to corrections	X	X
• Presentation materials covering all topics in this specification	X	X
• Equipment service and operation manual	X	X

All materials are in English language

Post Evaluation Parameter(s):

- Brochure/catalog with picture of equipment
- Technical data sheet
- Curriculum/outline of learning activities with description
- Teaching aids that may include, reading materials, activity sheets and/or video. The supplier either can provide these materials in digital format using secured access or printed form.

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder **Signature over Printed Name of Authorized Representative** **Date**

Inspection and Acceptance Parameters:

- Checking the conformity with the quantity including parts and accessories
- Checking the conformity of hardware vis-a-vis offered specifications
- Checking of teaching aids vis-a-vis listed course outline
- Functionality testing
- Commissioning and training

Sample Image:



Picture for reference only

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of
Authorized Representative

Date

Lot 4 : Smart Refrigeration and Air-Conditioning

APPROVED BUDGET FOR THE CONTRACT : One Million Four Hundred Forty-Four Thousand Forty Pesos and 60/100 (P1,444,040.60)

No.	Item	Agency Specifications	Qty	Unit	Statement of Compliance*	Make Brand / Model	Reference
1	Aircon split type	Kindly refer to the technical specifications attached as Annex G.	4	set			
2	Refrigerator		4	unit			

* Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of Authorized Representative

Date

**Summary per Lot and Technical Specification
Procurement of Learning Systems for Three (3) Existing Innovation Centers of TESDA**

ANNEX G

Lot/ Item No.	Code	Technology Area/ Learning System	Agency Specification	Classification	Test Parameters (Post Evaluation)	Test Parameters (Inspection and Acceptance)	Onsite Warranty (Parts and Service)	with Training	with Manual	Qty per Lot	Unit
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
4	13-000	Smart Refrigeration and Air-Conditioning									
1	13-001	Aircon split type	<ul style="list-style-type: none"> - 1.5HP - 2.0HP Inverter - Refrigerant:R32 - Wall mounted indoor unit - 220VAC, 60Hz - Supports Wi-Fi connection for monitoring and control Accessories: <ul style="list-style-type: none"> - Remote control 	Equipment	Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	Yes	Yes	4	set
2	13-002	Refrigerator	20~28 cu. ft At least 2-doors (side-by side) Inverter type compressor 220VAC, 60Hz Supports SMART Control to connect to mobile phone for better temperature control and system diagnosis		Brochure with picture and data sheet	<ul style="list-style-type: none"> - Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing 	1 Year	Yes	Yes	4	unit

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of Authorized Representative

Date

Lot 5 : Electrical Generator

APPROVED BUDGET FOR THE CONTRACT : Three Hundred Seventy-Nine Thousand Five Hundred Ninety-One Pesos and 92/100 (P379,591.92)

No.	Item	Agency Specifications	Qty	Unit	Statement of Compliance*	Make Brand / Model	Reference
1	Generator set	Kindly refer to the technical specifications attached as Annex H.	1	set			

* Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.

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**Summary per Lot and Technical Specification
Procurement of Learning Systems for Three (3) Existing Innovation Centers of TESDA**

ANNEX H

Lot/ Item No.	Code	Technology Area/ Learning System	Agency Specification	Classification	Test Parameters (Post Evaluation)	Test Parameters (Inspection and Acceptance)	Onsite Warranty (Parts and Service)	with Training	with Manual	Qty per Lot	Unit
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
5	18-000	Electrical Generator									
1	18-001	Generator set	Diesel Rated power: 15KW to 20KW Output type : AC Three Phase Rated Voltage: 110/120/220/230/380/400 Volts Rated Current:20--1500Amps Speed:1500rpm or 1800rpm Frequency:50HZ/60HZ Fuel tank capacity: 60 liters or higher Continuous operation at full load: 8 hrs or higher Dimension (LxWxH): not more than 3.5m x 3.0m x 1.83m	Equipment	Brochure with picture and data sheet	- Checking the conformity with the quantity including parts and accessories - Checking the conformity of hardware vis-a-vis offered specifications - Functionality testing	1 Year	Yes	Yes	1	set

I hereby commit to comply and deliver all the above requirements in accordance with the above schedule.

Name of Company/Bidder

Signature over Printed Name of Authorized Representative

Date