

Section VII. Technical Specifications

Notes for Preparing the Technical Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying their Bids. In the context of Competitive Bidding, the specifications (*e.g.* production/delivery schedule, manpower requirements, and after-sales service/parts, descriptions of the lots or items) must be prepared to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of transparency, equity, efficiency, fairness, and economy in procurement be realized, responsiveness of bids be ensured, and the subsequent task of bid evaluation and post-qualification facilitated. The specifications should require that all items, materials and accessories to be included or incorporated in the goods be new, unused, and of the most recent or current models, and that they include or incorporate all recent improvements in design and materials unless otherwise provided in the Contract.

Samples of specifications from previous similar procurements are useful in this respect. The use of metric units is encouraged. Depending on the complexity of the goods and the repetitiveness of the type of procurement, it may be advantageous to standardize the General Technical Specifications and incorporate them in a separate subsection. The General Technical Specifications should cover all classes of workmanship, materials, and equipment commonly involved in manufacturing similar goods. Deletions or addenda should then adapt the General Technical Specifications to the particular procurement.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for equipment, materials, and workmanship, recognized Philippine and international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that equipment, materials, and workmanship that meet other authoritative standards, and which ensure at least a substantially equal quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the Special Conditions of Contract or the Technical Specifications.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest edition or revision of the relevant standards and codes shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Reference to brand name and catalogue number should be avoided as far as possible; where unavoidable they should always be followed by the words "*or at least equivalent.*" References to brand names cannot be used when the funding source is the GOP.

Where appropriate, drawings, including site plans as required, may be furnished by the Procuring Entity with the Bidding Documents. Similarly, the Supplier may be requested to provide drawings or samples either with its Bid or for prior review by the Procuring Entity during contract execution.

Bidders are also required, as part of the technical specifications, to complete their statement of compliance demonstrating how the items comply with the specification.

Technical Specifications

Item No.	Specification	Statement of Compliance
		<i>[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>
1	Box Wrench 46pcs Tool Box Set socket wrench	
2	Claw Hammer 8Oz. Fiber Glass	
3	Cordless Reciprocating Saw 48V, +4 Saw blades Metal Cutting Wood Tool Portable Woodworking Cutters With 2PCS Batteries	
4	Digital Clamp Meter AC Current NCV AC/DC Voltage Tester	
5	Digital Multimeter 6000 Counts/2000 Counts True RMS Auto Ranging NCV AC/DC Voltage Current Resistance Multi-Tester	
6	Heavy Duty Bolt Cutter 18"/450mm AK-0625	
7	Metal Drill Hand Tool punch 1x 155mm Centre Punch Automatic Adjustable Spring Loaded	
8	Multifunctional Electrician Pliers Long Nose Pliers Wire Stripper Cable Cutter Terminal Crimping Hand Tools	

Technical Specifications - Re-bidding of the Proposed Procurement for the Supply and Delivery of EMT Laboratory Equipment for USTP-Villanueva Campus

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9	Original Spirit Level 80 cm	
10	Pipe bender in 1 Tube Bender	
11	Pipe Threader PVC Thread Maker Pipe Threader Tool Set 1/2 3/4 1 NPT Tube	
12	rechargeable wood cutting saw 20V Lithium automatic DC Cordless Battery 20V cordless reciprocating saw cutting metal	
13	Soldering Iron 90W Constant Temperature Electric Soldering Iron 180~480°C Temperature 300 watts	
14	Tap Reamer 12Pcs/Set Metric Hand Tap Die Set M3-M12 Screw Thread Plugs Straight Taper Wrench Reamer Tool	
15	Wire Stripper Long Needle Nose Nipper Electric Wire Stripper Cable Cutting Tool Pliers	
16	Wire Stripping Tool Self-adjusting & Automatic	
17	Ball Pein Hammer	
18	Electrician Knife	
19	<p>ELECTRO-PNEUMATICS TRAINER</p> <p>Includes the following:</p> <p>Aluminum profile frame with Aluminum bar rack, 1200(L)x750(W)x30(T)mm</p> <p>Air service unit</p> <p>Air distributor</p> <p>Single-acting cylinder (Ø: 25mm, stroke: 50 mm)</p> <p>Double-acting cylinder w/ cushion/proximity switch (Ø: 25 mm, stroke: 125 mm)</p> <p>T-connector, 4mm</p> <p>One-way flow control valve</p> <p>3/2-way solenoid valve (N/C)</p> <p>Solenoid Valve Module (24 Vdc, with 4mm terminal bushings)</p> <ul style="list-style-type: none"> • 5/2-way Single Solenoid Valve (3 units) • 5/2-way Double Solenoid Valve (3 units) • Shut-off Valve (1 unit) <p>Cylinder Control Module</p> <ul style="list-style-type: none"> • Double-acting cylinder (3 units) • Reed sensors for detecting movement (6 pcs) <p>5/2-way single solenoid valve</p> <p>5/2-way double solenoid valve</p> <p>5/3-way solenoid Valve (All Block)</p> <p>Input Switch Module with (with 4mm terminal bushings)</p> <p>4 Push-button switches</p> <p>2 Selector switches</p>	

	<p>1 Emergency switch 8 Toggle switches 4 Digits Thumb wheel digital switch Relay unit module with 3 relays (4-set change-over contacts each coil)) Digital Timer relay module (1 On-dealy and 1 Off delay) 1~99 sec delay Inductive sensor, PNP, 10~30 Vdc Capacitive sensor, PNP, 10~30 Vdc Optical sensor, PNP, 10~30 Vdc Optical Fiber Sensor, PNP, 12~24 VDC +/- 10% Electrical limit switch, left-actuated Electrical limit switch, right-actuated Pneumatic hose 4mm Pneumatic Hose 6mm Hose cutter Cable set (4mm of various colors and lengths sufficient to the exercises) Power supply (24 Vdc, 5A) Electro-pneumatics textbook Electro-pneumatics workbook (Advanced level) Air Compressor</p>	
20	FLAT FILE SMOOTH 6"	
21	Heat Gun 2000W	
22	<p>PROGRAMMABLE LOGIC CONTROLLER TRAINER Includes the following: Programmable Logic Controller Trainer</p> <ul style="list-style-type: none"> • Programmable Logic Controller • Digital Input: at least 14 • Digital Output: at least 10 • 4 mm Safety socket type I/O terminals • DB-25 Input and Output interface. • Power switch, AC cord, Fuse holder with Fuse • Ethernet cable • TIA Portal Software • Aluminum enclosure with 2 sets of one-touch clamp system <p>Push-button Switch Set Module</p> <ul style="list-style-type: none"> • Power : DC 24V • 2 sets Momentary push-buttons with pilot indicator • 1 set of Detent / Locking push-button with pilot indicator • 4 mm bushings for I/O terminals • Contact : 4-set each buttons (2 N.O. and 2 N.C.) • Contact allowable : Max, 1A 	

	<ul style="list-style-type: none"> • Aluminum enclosure with 2 sets of one-touch clamp mounting <p>Output Display Module</p> <ul style="list-style-type: none"> • 2 Pilot lights • 8 LED lights • 1 Buzzer • 4 Digits Display (FND) • 4mm bushings / terminal socket • DB-25 Interface <p>Aluminum enclosure with 2 sets of one-touch clamp mounting</p> <p>Optical Fiber Sensor</p> <ul style="list-style-type: none"> • Output: Normally Open / Normally Closed, PNP • Power: 12~24 VDC +/- 10% • Metal bracket mounted on one-touch clamp mounting <p>Terminals with 4mm bushing socket</p> <p>Optic Fiber w/ Separated Bracket</p> <ul style="list-style-type: none"> • Fiber cable diameter: 2.2 mm, Length: 2,000 mm • Metal brackets mounted on one-touch clamp mounting <p>Optic Fiber w/ a bracket</p> <ul style="list-style-type: none"> • Fiber cable diameter: 2.2 mm, Length: 2,000 mm • Metal brackets mounted on one-touch clamp mounting <p>PLC Manual and Exercises</p>	
23	6pcs Insulated Screwdriver Set 1000V, Round Shank IHT	
24	<p>Basic ARDUINO Package</p> <p>The Arduino Starter Kits featuring the Arduino Uno microcontroller board Primarily an educational tool for newcomers to Arduino and electronics, the starter kits are also suitable for the experienced designer. Using the included Arduino Projects Book, you can gain step-by-step knowledge on code, circuits and bread-boards via 15 suggested projects (although the starter kit is not limited to these projects).</p> <p>The ARDUINO Trainer must able to perform the following experiments:</p> <p>1) Learning the tools</p>	

- 2) Spaceship interface
- 3) Love-o-meter
- 4) Colour Mixing Lamp
- 5) Servo-motor Mood indicator
- 6) Light Theremin
- 7) Keyboard
- 8) Digital Hourglass
- 9) Motorised Pinwheel
- 10) Zoetrope
- 11) Magic 8-ball
- 12) Knock lock
- 13) Touch Sensor Lamp
- 14) Tweak the Arduino logo
- 15) Hacking buttons

The Arduino Kit must composed of the following technical data:

- 1 Arduino Project Book (170 pages)
- 1 Arduino Uno rev.3 microcontroller board
- 1 USB cable
- 1 Breadboard
- 1 Easy to assemble wood base
- 1 9V battery snap
- 1 70 hard cables
- 2 flexible cables
- 6 photoresistors
- 3 trimmer d10KOhm
- 10 pushbuttons
- 1 temperature sensor
- 1 tilt sensor
- 1 LCD (16x2i)
- 1 white LED
- 1 RGB LED
- 8 red LEDs
- 8 green LEDs

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25	Wire Stripper / Splicer	
***** Nothing Follows*****		

Additional Requirements:

The technical specification that shall be submitted by the Bidder shall include, among others:

1. *product specifications as supported by brochures or catalogues;*
2. *bidder's certification that it has after-sales support in Region X;*
3. *bidder's certification for one (1) year warranty;*
4. *certification from manufacturer/distributor that bidder is authorized dealer; and*
5. *certification of Service Center within the Region X.*