



**TENDER DOCUMENTS**

**Computer Lab Equipment**

**NUTECH / SCM / Computer Lab Eqpt (PSDP) 2020 / TD-113**

**NATIONAL UNIVERSITY OF TECHNOLOGY**

**TENDER NOTICE**

**National University of Technology (NUTECH)**

**NUTECH / SCM / Computer Lab Eqpt (PSDP) 2020 / TD-113**

Sealed bids are invited from Government / FBR Registered Firms for the procurement of Computer Lab Equipment for NUTECH on **FOR Basis**.

1. Tender documents containing terms, conditions and detailed specifications of items (including draft contract) can be downloaded from NUTECH website "<https://nutech.edu.pk>" w.e.f **21 Jan 2020**.
2. Quotations shall be submitted as per requirement of the tender documents.
3. Bidders will be required to submit **Bank Draft / CDR** equal to **5%** of quoted value as Bid Bond in favor of National University of Technology (NUTECH).
4. Sealed bids with detailed specifications should reach on the following address latest by **1000 hours on 07 Feb 2020**. Late submission will not be entertained.
5. Bids will be opened at **1030 hours on 07 Feb 2020** at SCM Office.
6. Project is to be completed in **90 days** from the date of award of contract.
7. Submit Rs 1500/- as Tender fee in favor of NUTECH HBL Account (**NUTECH Tendering and Contracts, 5037-7000210755**). Please attach bank receipt with technical offer. Offers will not be entertained without payment of processing fee.

**Deputy Director (Supply Chain Management)**

**NATIONAL UNIVERSITY OF TECHNOLOGY, UPROAD,I-12,ISLAMABAD**

**Tel: 0092-51-5476768, Ext: 227**

**NATIONAL UNIVERSITY OF TECHNOLOGY**  
**SUPPLY CHAIN MANAGEMENT**  
**INVITATION TO TENDER**

**Tender submission time:** 1000 hours, 7 Feb 2020

1. NUTECH desires to procure the list of item(s) / Store(s) on **FOR basis**. as per **Annexure-A**. Interested bidders are requested to send their bids through courier or deliver at NUTECH under "Single Stage – Two Envelopes" (two envelopes placed together in third envelope), marked clearly as "**Technical Offer**" and "**Commercial Offer**" respectively to the undersigned, latest by or before above mentioned due date.

2. **Conditions Governing Contracts.** The contract made as result of this IT will be in accordance with the draft contract published on NUTECH University website and other special conditions (Mentioned in this document) that may be added to given contract for the supply of Lab Equipment.

3. **Delivery of Tender.** The offer is to be submitted as under:-

- a. **Technical Offer.** Technical Offer should contain only Annexure-A, Annexure-A-1 & Annexure B duly filled in (supported with relevant technical literature / details / catalogues etc) and receipt of tender processing fee. Copy of bid bond WITHOUT MENTIONING PRICE should be attached with technical offer. Only relevant technical details i.e literature/brochures) without mentioning the financial aspect of the offer in DUPLICATE should be enclosed in an envelope. In technical proposal, all items must have the brand names, model number, manufacturer's name, country of origin, manufacturer's warranty including parts with complete specs and brochures. Re-conditioned and re-furbished equipment shall not be acceptable. Following information will be clearly marked on the envelope:

- (1) Technical Offer
- (2) Original Performa Invoice (without price)
- (3) Tender number

(4) Date/ time of opening

b. **Commercial Offer.** Commercial Offer will contain Annexure-C and bid bond (Dully mentioned and placed in separate envelope. The offer indicating the quoted price FE/Local Currency (in Local Currency for FOR cases & in FE for FOB cases) in figures as well as in words would be enclosed in an envelope. Following information will be clearly marked on the envelope;

- (1) Commercial Offer
- (2) Original Performa invoice with price
- (3) Tender number

c. Both the envelopes i.e. commercial offer and technical offer would be enclosed in yet another properly sealed envelope that will be marked with address of this office only. There should be clear indication that this envelope contains tender documents.

d. The tender duly sealed will be addressed to the following:-

Deputy Director (Supply Chain Management Office)  
NATIONAL UNIVERSITY OF TECHNOLOGY (NUTECH)  
I J P ROAD, I-12, ISLAMABAD  
Tel: 0092-51-5476768, Ext: 227

4. **Date and Time for Receipt of Tender.** Sealed bids with detailed specifications should reach SCM office latest by **1000 hours on 07 Feb 2020**. Delay occurring in post shall not be accepted. Tenders received after the appointed / fixed time will NOT be entertained. The appointed time will, however, fall on next working day in case of closed / forced holiday.

5. **Tender opening.** The offers shall be opened 30 minutes after submission time. Commercial offers will be opened at later stage if Technical Offer is found acceptable on examination by technical authorities. Date and time for opening of

commercial offer shall be intimated later. Only legitimate / registered representatives of firm will be allowed to attend tender opening.

6. **Validity of Offer.** The validity period of quotations must be indicated and should be 90 days from the date of opening of financial offer.

7. **Documents.** Following information / copy of documents must be provided / attached with offer:-

- a. A copy of letter showing firm's financial capability.
- b. NTN/GST number be mentioned on the offer and copy of registration Certificate issued by Sales Tax Department, attached.
- c. Foreign supplier to provide its Registration Number issued by respective Department of Commerce authorizing export of subject stores **(in FOB cases)**.
- d. Annexes A, A-1, B and C and special conditions must be signed and stamped. **ATTACH ONLY RELEVANT DOCUMENTS.**
- e. Complete all Annexes as per given format. Do not use your format or letter head. Offer may be rejected if given format is not followed.
- f. OEM/principal agency agreement must be provided.

8. **Disqualification.** Offers are liable to be rejected if:-

- a. Validity of offer is not quoted as required in IT documents.
- b. Any deviation from the General/ Special / Technical Instructions.
- c. Offers are found conditional or incomplete in any respect.
- d. Copy of EM/Bid Bond & Tender processing fee (with tech offer) and original EM/Bid Bond (with fin offer) are NOT attached.
- e. Multiple rates are quoted against one item.
- f. Manufacturer's relevant brochures and technical details on major equipment assemblies are not attached in support of specifications.
- g. Offer received later than appointed / fixed date and time.
- h. Subject to restriction of export license.

- i. Offers (Commercial / technical) containing non-initialled / unauthenticated amendments / corrections / overwriting. If the validity of the agency agreement has expired. The commercial offer against FOB / CIF / C&F tender quoted in local currency.
  - j. If the offer is found to be based on cartel action in connivance with other sources/participants of the tender.
9. **Earnest Money / Bid Bond.** Commercial Offer must be accompanied with a Bid Bond (CDR/Pay Order/Bank Draft) in agreement of faithful compliance of the conditions of Contract. This amount will be equivalent to 5% of the total quoted value. The Bid Bond amount submitted by the successful bidder will however be refunded on effective termination of Contract. (The Bid Bond will be forfeited in case of default by the bidder from his commitments made through his offer). Submission of Bid Bond is mandatory; otherwise your offer will be rejected. Bid Bond will be used as performance guarantee till the delivery of stores, otherwise separate performance guarantee valued at 5 % of contract will be submitted by successful firm till stores are delivered and inspected.
10. **Return of Earnest Money/Bid Bond.**
  - a. Bid Bond to the unsuccessful bidders will be returned on finalization of the lowest evaluated bidder.
  - b. Bid Bond of the successful bidder/bidders will be returned on submission of Bank Guarantee/Bid bond against warranty period OR Bid bond retained for the warranty period as the case may be.
11. **Terms of Payment/ LC Charges**
  - a. **In FOB cases** (all categories) payment will be made through letter of credit (LC). LC opening charges in Pakistan are to be borne by NUTECH. Payment will be made through irrevocable LC in favour of Manufacturer.
  - b. **In FOR cases** 50% advance payment will be made to the Seller on provision of unconditional Bank Guarantee/ CDR/ DD/ Pay order. 50% payment will made to the Seller after receipt and confirming the correctness of ordered specifications, installation, commissioning OR as the case may be.

12. **Bank Guarantee (BG)**. In case where equipment is backed by warranty, the BG submitted equal to 05% of FOB/FOR/CPT etc value shall remain valid for up to 60 days beyond completion of warranty period.
13. **Taxes/ Duties/ Custom clearance** All taxes /duties /import Licenses Fee as applicable under government laws in Pakistan as well as country of supplier shall be on firm **(in FOR Case)**. NUTECH will provide applicable exemption certificates and documents **(In FOB Cases only)**.
14. **Insurance:-** Insurance will be NUTECH's responsibility through NICL **(in FOB Cases)**.
15. **Freight charges /Misc charges:** All charges such as packing, forwarding, local freight, loading and unloading, installation and commissioning, custom clearance, orientations, on job training or any other will be part of quoted price. Delivery till NUTECH will be firm's responsibility and all associated costs will be part of quotation as well.
16. **Warranty.** All goods /store offered would be brand new, from current year of production and will be governed as per warranty clause. The warranty period may be covered by BG as depending on the value /criticality of the tender equipment.
17. **Delivery Schedule.** Store will be delivered within 90 days from contract signing date.
18. **Force Majeure.** If non-compliance with the period of delivery or services can be proved to be due to Force Majeure, such as but not limited to mobilization, war, riot, strike, lockout or the occurrence of unforeseen events, the period shall be reasonably extended.
19. **Subletting** Suppliers are not allowed to sublet wholly or part of the contract to any other firm /company without prior permission by NUTECH. Firm found in breach of the clause will be dealt with as per purchaser's right and discretion.
20. **Arbitration.** The dispute shall referred for adjudication to a board comprising of Pro-Rector NUTECH as Chairman and two arbitrators, one to be nominated by each party. The arbitration proceeding shall be held in Pakistan under Pakistan Law. The venue of arbitration shall be the place from which the contract is issued or such other place as the purchaser at his discretion may determine. Arbitration award so given will be firm and final.

21. **Redress Of Grievance.** In case of dispute, case shall be reviewed by 'NUTECH Redress of grievance committee and decision of NUTECH shall be final and binding on both parties.
22. **Export License/Permit /End User Cert.** It shall be the responsibility of the Supplier to obtain from the Government concerned all permits and export licenses, etc required to enable each consignment to be shipped immediately as per the delivery schedule. In case the supplier fails to arrange export license within 30 days of signing the contract the purchaser reserves the right to cancel the contract on the risk and expense of the supplier without prior notice. The purchaser will provide End User Certificate for acquisition of export license to the supplier (format to be provided by the supplier for respective country within 10 day of signing of the contract).
23. **Technical Specification:** The supplier will provide OEM certificate, quality certificate /inspection document to the purchaser confirming the quality of the product being supplied under this contract .Store must bear the manufacturer's identification marking /monogram.
24. **Inspection /Testing of Store:** Inspection testing will be carried out at NUTECH by the concerned inspection team as detailed by the respective department in accordance with the laid down Acceptance Criteria. (Acceptance Test Procedure (ATPs)/Drawing /Test standard and specification). **The supplier will provide ATPs with technical offer.** Mutually agreed/approved ATPs will form part of contract to govern the inspection of store subsequently.
25. **Requirement of Samples.** The requirement of tender sample will be included in the case if required for evaluation by technical authorities'. Beside this advance sample if required will be also made part of the IT as well as the contract.
26. **Change In Specification / Mfr / Model.** No alternation marked/brand and quality of store will be entertained after the tender have been opened.
27. **Checking of Store at Consignee End.** All stores will be checked at Consignee's end in the presence of the supplier's representative. If for some reason, the supplier decides not to nominate his representative for such checking, an advance written notice to this effect will be given by the supplier to the consignee



prior to immediately on shipment of store. In such an event the supplier will clearly undertake that decision of consignee with regard to quantities and description of consignment will be taken as final and discrepancy found will be accordingly made up by supplier. In all other cases the consignee will inform the supplier about arrival of consignment immediately on receipt of store through registered email/letter and telephone. If no response from the supplier is received within 15 days from initiation letter the consignee will have the right to proceed with the checking without supplier's representative. Consignee's report on checking of the stores will be binding on the supplier in such cases.

28. **Packing /Marking.** The supplier shall be responsible for proper packing of the Store in standard export packing worthy of transportation by sea /air /road rail so as to ensure their content being free from lose or damages due to faulty packing on arrival at the ultimate destination. Packing of stores will be done at the expenses of the supplier. All packing cases, containers and other packing material shall become the property of the NUTECH on receipt. Any loss occurred /demurrage paid due to wrong marking will be made good by the supplier

29. **Original Performa Invoice:** Original Performa invoice must have following components incorporated:-

- a. HS Code
- b. Incoterm
- c. Payment Terms
- d. Origin of good
- e. Port of shipment
- f. Address of OEM
- g. Seller acceptance (on Performa Invoice)
- h. Invoice Date
- i. Latest date of shipment
- j. Seller complete bank detail

**Note:** Performa Invoice in the name of NUTECH in case of FOB cases & in the name of local partner in case of FOR cases.

30. **General Instructions:** Following must be noted:-
- a. The firm should provide point to point acceptance of each clause of IT and special instructions attached with IT.
  - b. Firm will render a certificate with technical offer that firm is neither defaulter nor blacklisted by any Government / semi Government organization directly or indirectly.
  - c. Rates should be quoted on Free Delivery basis at NUTECH Islamabad.
  - d. **1 year** warranty against **5% Bank Guarantee** of the store value will be required from the successful bidders from the date of commissioning as performance bond.
  - e. The stipulated delivery period should be strictly adhered to. Any anticipated delay that is beyond the control of Seller will be informed (in writing) well in advance of the expiry of the due date of the activity along with reasons thereof, requesting for the grant of extension in delivery period. If the Seller fails to do so, or the Buyer is not convinced with the rationale provided by the Seller, Liquidated Damages up to/at 2% per month or part thereof, will be imposed. However, the maximum limit of the Liquidated Damages will not exceed 10% of the delayed store value.
  - f. If even after applicability of 10% LD, the Seller fails to deliver the required stores, the Buyer will be at liberty to Cancel the contract, and /or procure the stores from an alternate source, on the Seller's "Risk & Cost/Expense". In that case, the Seller will be bound to make payment to the new source through NUTECH. The purchaser's decision under this clause shall NOT be subjected to arbitration.
  - g. NUTECH reserves the right to cancel the Contract without assigning any reason whatsoever during its currency / execution / after placement, if the firm is found to be involved in any dubious activity, litigation, lacking to meet contractual obligations with the purchaser or is blacklisted with any other Public procurement agency. No claims / loss /damage of whatsoever nature shall be entertained and NUTECH's decision in this regard will be final / binding on the Seller.
  - h. An appropriate amount may be paid for mobilization against Bank Guarantee/CDR/Demand Draft/Pay Order.

- i. Firms with previous pending/outstanding projects/business with NUTECH may not be considered for award of this tender.

Deputy Director  
Supply Chain Management Office

**Annex-A****Technical Specifications****NUTECH / SCM / Computer Lab Eqpt (PSDP) 2020 / TD-113**

Ser	Items	Description	A/U	Country of Origin	Qty Req	Bidder Compliance		Tech Scrutiny to be done by user	
						Yes	No	Accepted	Rejected
						Reason of Rejection			
1	IOT Kit	IoT kit must be Arduino compatible board with sensors, Ethernet shield and other common components. <ul style="list-style-type: none"> <li>● 1x W5100 Ethernet shield module</li> <li>● 1 x Photoresist or Sensor Module</li> <li>● 1 x DS18B20 Temperature Sensor Module</li> <li>● 1 x HC-SR04 Ultrasonic sensor module</li> <li>● 1 x DHT11 Temperature &amp; Humidity sensor</li> <li>● 1x BMP180 Barome Electric Pressure Sensor Module</li> <li>● 1 x Sound detection sensor module</li> <li>● 1x Smoke Detection Sensor</li> <li>● 1 x Water Level Detection Sensor</li> <li>● 1 x PIR Motion Sensor HC-</li> </ul>	No	Any	13				

		<p>SR501</p> <ul style="list-style-type: none"> <li>● 1 x Servo Motor</li> <li>● 1 x One Channel Relay Module</li> <li>● 1 x Active buzzer module</li> <li>● 1x solder less prototype breadboard</li> <li>● 24 x LED (6 x White, 6 X RED, 6 x YELLOW, 6 x Green)</li> <li>● 20x resistors (200ohm)</li> <li>● 20x resistors (1kohm)</li> <li>● 20x resistors (10kohm)</li> <li>● 5x Resistors (1Mohm)</li> <li>● 1 x 40 Pin jumper wires (15 cm, M to M)</li> <li>● 1 x 20 pin jumper wires (15 cm, M to F)</li> <li>● 2 x 8 pin jumper wires (20 cm, F to F)</li> <li>● 1 x DVD User Manual</li> </ul>							
2.	<b>Function Generator</b>	<ul style="list-style-type: none"> <li>● Dual-channel, with bandwidth up to 60-80 MHz, and amplitude up to 20 Vpp.</li> <li>● 150 MSa/s sampling rate, 14-bit vertical resolution, and 16 kpts waveform length</li> <li>● Innovative Easy Pulse technology, capable of generating lower-jitter Pulse waveforms, brings a wide range and extremely high precision in pulse width and rise/fall times adjustment.</li> </ul>	No	Any	30				

		<ul style="list-style-type: none"> <li>● Special circuit for Square wave function, can generate Square waves up to 60 MHz with jitter less than 300 ps+0.05 ppm of period.</li> <li>● Plenty of analog and digital modulation types: AM, DSB-AM, FM, PM, FSK, ASK, PSK and PWM.</li> <li>● Sweep and Burst functions.</li> <li>● Harmonics Generator function.</li> <li>● Waveform combining function.</li> <li>● High precision Frequency Counter.</li> <li>● Standard interfaces: USB Host, USB Device (USBTMC), LAN (VXI-11).</li> <li>● Optional interface: GPIB.</li> <li>● Waveform combining function.</li> <li>● 4.3" TFT-LCD display.</li> </ul>						
3.	<b>Digital Handheld Multi-meter</b>	<ul style="list-style-type: none"> <li>● 6000 Counts Auto/Manual Ranging</li> <li>● Capacitance, Frequency Measurement</li> <li>● DC Voltage Range: 1000 V</li> <li>● AC Voltage Range: 750 V</li> <li>● Resistance: 60 M<math>\Omega</math> 6 ranges</li> <li>● Continuity Beeper/Diode Test</li> <li>● High Energy Fuse for 10A Range</li> <li>● Data Hold/Relative Mode</li> <li>● True RMS</li> </ul>	No	Any	30			

4.	<b>Digital Oscilloscope (Type 1)</b>	<ul style="list-style-type: none"> <li>● 100-200 MHz bandwidth model.</li> <li>● Real-time sampling rate up to 1 GSa/s.</li> <li>● The newest generation of SPO technology</li> <li>● Waveform capture rate up to 100,000 wfm/s, and 400,000 wfm/s (sequence mode)</li> <li>● Supports 256-level intensity grading and color display modes •Record length up to 14 Mpts</li> <li>● Digital trigger system</li> <li>● Intelligent triggers: Edge, Slope, Pulse Width, Window, Runt, Interval, Time out (Dropout), Pattern.</li> <li>● Serial bus triggering and decoding (Standard), supports IIC, SPI, UART, RS232, CAN, and LIN</li> <li>● Video trigger, supports HDTV</li> <li>● 10 types of one-button shortcuts, supports Auto Setup, Default, Cursors, Measure, Roll, History, Display/Persist, Clear Sweep, Zoom and Print</li> <li>● Segmented acquisition (Sequence) mode, dividing the maximum record length into multiple segments (up to 80,000), according to trigger conditions set by the user, with</li> </ul>	No	Any	30			
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		<p>a very small dead time segment to capture the qualifying event</p> <ul style="list-style-type: none"><li>● History waveform record (History) function, the maximum recorded waveform length is 80,000 frames</li><li>● Automatic measurement function for 38 parameters, supports Statistics, Zoom measurement, Gating measurement, Math measurement, History measurement and Ref measurement</li><li>● True measurement and math of all sampled data points (to 14M)</li><li>● Math functions (FFT, addition, subtraction, multiplication, division, integration, differential, square root)</li><li>● Preset key can be customized for user settings or factory “defaults”</li><li>● Security Erase mode</li><li>● High Speed hardware based Pass/Fail function</li><li>● Large 7 inch TFT-LCD display with 800 * 480 resolution</li><li>● Multiple interface types: USB Host, USB Device (USBTMC), Optional( LAN (VXI-11)), Pass/Fail, Trigger Out</li></ul>						
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		<ul style="list-style-type: none"> <li>• Supports SCPI remote control commands</li> <li>• Supports Multi-language display and embedded online help</li> </ul>						
5.	<b>Power Supply variable</b>	<ul style="list-style-type: none"> <li>• 3 Independent Isolated Output, 195 W</li> <li>• 4 LED Display Sets: 3 digits after decimal point</li> <li>• Minimum Resolution :</li> <li>• 100mV/10mA(GPD-3303D)</li> <li>• Digital panel control(rotary encoder Switch, rubber key with indicator)</li> <li>• User-friendly operation, coarse/fine volume control</li> <li>• 4 Sets Save/Recall</li> <li>• Key-Lock</li> <li>• Output on/off</li> <li>• Tracking Series and Parallel mode</li> <li>• Smart cooling fan achieving low noise</li> <li>• USB Standard Interface</li> </ul>	No	Any	30			

		<ul style="list-style-type: none"> <li>• Lab view driver</li> </ul>						
6	<b>Stand Drilling Machine</b>	<ul style="list-style-type: none"> <li>• PCB Drill Stand.</li> <li>• 230VAC 50/60Hz Operation</li> <li>• Continuous duty motor with replaceable brushes</li> <li>• Base plate</li> </ul>	No	Any	1			
7	<b>FPGA Kit (Type 1)</b>	<ul style="list-style-type: none"> <li>• Xilinx Spartan-6 LX45 FPGA (XC6SLX45-CSG484-3)</li> <li>• 6,822 slices, each containing four input LUTs and eight flip-flops</li> <li>• 2.1Mbits of fast block RAM</li> <li>• Four clock tiles (eight DCMs &amp; four PLLs)</li> <li>• 58 DSP slices</li> <li>• 500MHz+ clock speeds</li> <li>• 128MB DDR2 SDRAM</li> <li>• 2MB SRAM</li> <li>• 16MB QSPI FLASH for configuration and data storage</li> <li>• 100 MHz Crystal Oscillator</li> <li>• Ships with a 20W power supply and USB cable</li> <li>• 10/100 Ethernet PHY</li> <li>• HDMI Video Output</li> <li>• 12-bit VGA port</li> <li>• I2S Audio codec with line-in, line-out, mic, and headphone</li> <li>• Digilent USB-JTAG circuitry with USB-UART function</li> </ul>	No	USA	13			

		<ul style="list-style-type: none"> <li>● 4.3" wide-format vivid color LED backlit LCD screen</li> <li>● 128x32 pixel 0.9" OLED graphic display panel</li> <li>● Three two-digit seven-segment LED displays</li> <li>● On-board USB2 ports for programming and USB-HID devices (for mouse/keyboard)</li> <li>● Keypad with 16 labeled keys (0-F)</li> <li>● GPIO: 14 LEDs (10 red, 2 yellow, 2 green), 8 slide switches, 8 DIP switches in 2 groups, and</li> <li>● 4 push buttons</li> <li>● Breadboard with 10 Digital I/Os</li> <li>● 32 I/Os routed to 40-pin expansion connector (I/Os are shared with Pmod ports)</li> <li>● Seven 12-pin Pmod ports with 56 I/Os total</li> </ul> <p><b>Package include:</b></p> <ol style="list-style-type: none"> <li>1)FPGA</li> <li>2) Custom cardboard box with protective foam</li> <li>3) One USB A to micro-B cable</li> <li>4) 20W external power supply</li> </ol>						
8	<b>MSP-430 development</b>	<p><b>Package contains:</b></p> <ul style="list-style-type: none"> <li>● 1 x Launchpad Development</li> </ul>	No	USA	25			

	<b>kit</b>	Board <ul style="list-style-type: none"> <li>• 1 x M430G2553IN20 Microcontroller</li> <li>• 1 x M430G2452IN20 Microcontroller</li> <li>• 1 x 32.768 KHz Crystal</li> <li>• 2 x 2.54 mm 1x10 Female Header</li> <li>• 1 x USB-A to Mini-USB Cable</li> <li>• 2 x Launchpad Stickers</li> <li>• 14/20-pin DIP socket</li> </ul>						
9	<b>Microcomputer Trainer (Type 1)</b>	<b>Type 1: (x10)</b> <ul style="list-style-type: none"> <li>• Diagrammatic representation of full system</li> <li>• 72 I/O lines through 8255</li> <li>• Powerful monitor program</li> <li>• Battery backup for RAM</li> <li>• Three channel Timer/Counter using 8253</li> <li>• On board 8 channel ADC</li> <li>• On board DAC</li> <li>• Two modes of operation</li> <li>• Keyboard mode</li> <li>• Serial Mode</li> <li>• Facility of downloading and uploading the files from PC</li> <li>• All Address and Control lines are provided on 50 pin connector</li> <li>• 8089 I/O Processor (Optional)</li> <li>• 8087 Math coprocessor(Optional)</li> </ul>	No	Any	10			

		<ul style="list-style-type: none"> <li>• Learning Material</li> <li>• 2 Year Warranty</li> </ul> <b>Technical Specification</b> <ul style="list-style-type: none"> <li>• Operating Frequency : 5 MHz</li> <li>• RAM : 16 K</li> <li>• ROM : 16 K</li> <li>• Display : 20 X 2 LCD</li> <li>• Input : ASCII Keyboard</li> <li>• Dimensions (mm) : W 326 x D 252 x H 52</li> <li>• Power Supply : 110V - 260V AC, 50/60Hz</li> <li>• Weight : 1.5Kg (approximately)</li> <li>• Operating Conditions : 0-40 C, 85% RH</li> <li>• Learning Material</li> </ul>						
10.	<b>Digital Multimeter (bench top)</b>	<b>Bench top Multimeter:</b> <ul style="list-style-type: none"> <li>• 50000 Counts Display</li> <li>• Multi-Function: ACV, DCV, ACA, DCA, R, C, Hz, Continuity Beeper, Diode, Test, Max/Min, REL, Hold, dBm</li> <li>• Dual Display Indicate ACV and Hz, or DCV(ACV) and dBm</li> <li>• Manual or Auto Ranging</li> <li>• 0.03% DCV Accuracy</li> <li>• ACV Measuring Frequency Up to 50kHz</li> <li>• AC True RMS or AC + DC True RMS</li> </ul>	No	Any	10			
11.	<b>Analog &amp; Digital Circuit Design</b>	Solderless breadboard: <ul style="list-style-type: none"> <li>• Interconnected with 2712 tie points, nickel plated contact.</li> </ul>	No	Any	10			

	<b>Trainers</b>	<p>Power Supply:</p> <ul style="list-style-type: none"> <li>● Fixed DC output: +5V, 1A.</li> <li>● Fixed DC output: -5V, 300mA.</li> <li>● Variable DC output: 0V~+15V, 500mA.</li> <li>● Variable DC output : 0V~-15V , 500mA</li> </ul> <p>Potentiometers:</p> <ul style="list-style-type: none"> <li>● Variable resistor VR1=1K<math>\Omega</math> (B)</li> <li>● Variable resistor VR2=100K<math>\Omega</math> (B)</li> </ul> <p>Function generator:</p> <ul style="list-style-type: none"> <li>● Frequency ranges : 0.1 Hz~2Hz</li> <li>● (6 ranges) 1 Hz~20Hz</li> <li>● 10Hz~200Hz</li> <li>● 100Hz~2KHz</li> <li>● 1KHz~20KHz</li> <li>● 10KHz~200KHz</li> <li>● Amplitude Sine wave output : 0 Vpp variable</li> <li>● Triangle wave output : 0 ~5Vpp variable</li> <li>● Square wave output : 0 ~15Vpp variable</li> </ul> <p>Universal counter:</p> <ul style="list-style-type: none"> <li>● Frequency range : 1Hz~99.999999MHz ; 10Hz~100.000000MHz</li> <li>● Period range TH&amp;TL : 0.01 s s 1 s ~ 99999999 s</li> <li>● Input sig al :TTL or CMOS level or any level(Vmin<math>\geq</math>+2.3Vp 10%)</li> <li>● Display : 8-digit 7-segment LED</li> </ul>						
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		display <ul style="list-style-type: none"> <li>● Counter switch : External/ internal</li> </ul> Eight bits data switches Two Digit Segment LED Display Two pulse switch Universal connector fixed holder						
12	<b>8051 Development Board</b>	<ul style="list-style-type: none"> <li>● AT89S52 Microcontroller IC</li> <li>● USB connector</li> <li>● Power supply.</li> <li>● 7 Segment multiplexed display.</li> <li>● Power switch.</li> <li>● 8 bit LED.</li> <li>● 4x4 matrix keypad.</li> <li>● LCD header (16x2).</li> <li>● EEPROM.</li> <li>● External &amp; internal switch.</li> <li>● Reset switch.</li> <li>● Serial Cable</li> <li>● DB9 female connector.</li> </ul>	No	Any	17			
13.	<b>PIC Microcontroller development Board</b>	<ul style="list-style-type: none"> <li>● PIC Development Board with following Modules, ICs and Interfaces</li> <li>● PIC Development board with All ICs</li> <li>● Microcontrollers: 16F877,18F2520</li> <li>● LCD 16x2</li> <li>● Seven Segments</li> <li>● RTC battery</li> <li>● DIP Switch</li> <li>● LEDs</li> <li>● 4 x 4 Keypad</li> <li>● Serial Ports</li> </ul>	No	Any	17			

		<ul style="list-style-type: none"> <li>• Temperature Sensor LM35</li> <li>• Power adapter 12V, 1A</li> <li>• Single pin female connectors: 20</li> <li>• Serial Cable</li> <li>• USB Cable</li> <li>• PIC Programmer</li> </ul>						
14.	<b>Bread board station</b>	<ul style="list-style-type: none"> <li>• Large breadboard with rugged steel backing</li> <li>• 3x 630 tie point terminal strips included</li> <li>• 5x 100 tie point distribution strips included</li> <li>• Four screw terminals for power supply connections included</li> <li>• 4 adhesive rubber feet included</li> </ul>	No	USA, EU	25			
15.	<b>3D Printer</b>	<ul style="list-style-type: none"> <li>• Combines 3D printing &amp; scanning in one unit all in one (AiO)</li> </ul> <p><b>Printing Properties:</b></p> <ul style="list-style-type: none"> <li>• Print Technology: FFF(Fused Filament Fabrication)</li> <li>• Max. Build Area (WxDxH): 200 x 200 x 190 mm</li> <li>• Layer Resolution: 100 - 400 microns</li> <li>• XY Positioning Precision: X/Y 12.5 micron</li> <li>• Z Positioning Precision: Z : 0.0004 mm</li> <li>• Printing Software: XYZware</li> <li>• Supported File Formats: .stl, .3mf, XYZ format (.3w), .nkg</li> </ul>	No	Any	1			



		<p>(.stl)</p> <ul style="list-style-type: none"> <li>• 3D Builder Support: YES</li> <li>• Max. Moving Speed: Max. 120 mm/s</li> </ul> <p><b>Scanning Properties:</b></p> <ul style="list-style-type: none"> <li>• Scan Technology: Slit Laser Triangulation</li> <li>• Scan Size (Ø x H): 3 x 3 cm ~ 15 x 15 cm ( 1.18 x 1.18" ~ 5.9 x 5.9")</li> <li>• Scan Resolution: 2140 points/cm<sup>2</sup> (13900 points/inch<sup>2</sup>)</li> <li>• Scan Accuracy: 0.25 mm</li> <li>• Scan Software: XYZscan</li> <li>• Output File Types: stl, .obj, .das</li> <li>• Stepper Motors: 1.8° HB Stepper Motors</li> <li>• User Interface: 2.6" LCM</li> <li>• Language: Multilingual</li> <li>• Connectivity: USB 2.0 Cable</li> <li>• Operating Systems :Windows 7 / 8 / 8.1 / 10 (64 bits) macOS 10.10 / 10.11 / 10.12 / 10.13 / 10.14</li> <li>• Minimum Hardware Requirements: For PC: CPU 4th Generation Intel® Core™ i5 Processor or more / RAM: 8GB / Hard disk space: 20GB or more: For MAC: RAM: 8GB / Hard disk space: 20GB or more</li> </ul> <p><b>Package include:</b></p>					
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		<p>ABS Plastic Filament Cartridge: (x20)</p> <ul style="list-style-type: none"> <li>• Print temperature ranges from 215 to 250 degrees C (419 to 482 degrees F)</li> <li>• 600-g cartridge of 1.75-mm filament</li> <li>• Black(x4), White(x10), Neon Yellow(x4), Sun orange(x2) color</li> </ul> <p>For use with the XYZPrinting 1.0 3D printer (sold separately) Essential running spares and maintenance spares</p>						
16.	<b>Magnetic Levitation Demo Kit</b>	<ul style="list-style-type: none"> <li>• Can float up and spin.</li> <li>• 4 directions LED lights are all light up at the same time, and release the float,</li> <li>• Will be able to float up.</li> <li>• Material: Magnet Load-bearing: 500g</li> </ul>	No	Any	5			
17.	<b>Robotic Kit (Core Set)</b>	<ul style="list-style-type: none"> <li>• The system includes the EV3 Intelligent Brick</li> <li>• A compact and powerful programmable computer that makes it possible to control motors and collect sensor feedback using the intuitive icon-based programming and data logging software that is delivered with the set.</li> <li>• The set is delivered in a sturdy storage bin with a sorting tray,</li> </ul>	No	Any	3			

		three Servo Motors, five Sensors (Gyro, Ultrasonic, Color and 2x Touch), a EV3 Rechargeable DC Battery (with charging cable) and connecting cables.						
18.	<b>Arduino UNO R3</b>	<ul style="list-style-type: none"> <li>● ATmega328 microcontroller</li> <li>● Input voltage - 7-12V</li> <li>● 14 Digital I/O Pins (6 PWM outputs)</li> <li>● 6 Analog Inputs</li> <li>● 32k Flash Memory</li> <li>● 16 Mhz Clock Speed</li> <li>● USB cable</li> <li>● Transparent Acrylic Box For Arduino UNO R3</li> <li>● Power supply adapter</li> </ul>	No	Any	15			
19	<b>EPROM Simulator</b>	<ul style="list-style-type: none"> <li>● AT2404 EEPROM.</li> <li>● USB Communication with CP2102</li> <li>● Eight 5mm LEDs</li> <li>● Eight Switches in DIP package</li> <li>● LCD 16x2</li> <li>● Four Seven Segment Displays</li> <li>● ADC 0808 with 555 timer for sampling frequency</li> <li>● POT for ADC</li> <li>● Light Sensor(LDR).</li> <li>● Temperature sensor(LM35).</li> <li>● Two Relays for Switching AC devices.</li> <li>● 4x4 Keypad.</li> <li>● L293D Motor Driver for DC and Stepper Motors.</li> </ul>	No	Any	2			

		<ul style="list-style-type: none"><li>• DS1307 based Real Time Clock.</li><li>• USB cable.</li><li>• Power Adapter</li><li>• Single wire female connectors.</li></ul>						
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<b>Firm Name:</b> _____
<b>Signature:</b> _____
<b>Name:</b> _____
<b>Designation:</b> _____

**Annex A-1****Special Instructions**

Description	Bidder			Tech Scrutiny to be done by User		
	Yes	No	Alternate Offer	Accepted	Rejected	Reasons of Rejection
<b>Environment Conditions</b> (a) Temperature range: 05°C to +45°C (b) Relative humidity: 0-70% non-condensing						
<b>Warranty period</b> One year from the date of commissioning.						
<b>Training Notes</b> Supplier will provide a set of handouts for training on operation and maintenance of the equipment						
<b>Publications</b> Supplier is to provide hard and soft copies (CD) of following manuals. (a) <b>Operational / Maintenance manual:</b> - Qty 01 with Equipment and additional Qty 02 for record purposes and should consist of following sections:- (1) <b>Equipment Description /Operation:-</b> (a) Specifications (b) Description (c) Operation (2) <b>Servicing:-</b> (a) Maintenance Schedule (b ) Adjustment / test (c) Removal / Installation procedure (d) Tools Required (3) Trouble shooting guide (4) Cleaning requirements (b) Full parts description along with detailed diagrams (exploded view). (c) <b>Experimental manuals</b> which must contain the list and procedure of the experiments that equipment can perform.						

<p><b>Spares / Technical Support</b></p> <p>(a) Supplier to have in-country spares / technical support and ensure spares and technical support / assistance for next 10 years</p> <p>(b) Comprehensive list of spares required for scheduled maintenance of Equipment is to be provided</p> <p>(c) Any software provided must have its license</p> <p>(d) Software upgrade support must be provided free of cost for 10 x years with renewed license at every upgrade</p> <p>(e) Supplier must also provide calibration service for at least 5 years after commissioning</p>						
<p><b>Additional Spare / Replaceable parts.</b></p> <p>(a) Replaceable spare / parts during scheduled inspections are to be identified and provided as per requirement along with equipment sufficient to cater five years consumption.</p> <p>(b) All specialized / standard tools required for inspection / repair / servicing must be supplied along with equipment.</p>						
<p><b>Physical Inspection Criteria:</b> 100% physical inspection of store will be carried out before commissioning of the equipment for following details:-</p> <p>(a) For physical damage, scratches and deformity.</p> <p>(b) Accessories /components as per contractual specifications.</p> <p>(c) Technical Manuals (Operation manual, user guide, IPBs).</p> <p>(d) Quality certificate and calibration certificate by the OEM</p> <p>(e) OEM certificate and verifiable documents by the supplier that store has been procured from certified source and is factory new and from latest production.</p> <p>(f) Brand name and country of origin.</p>						
<p><b>Commissioning</b></p> <p>(a) Commissioning of the equipment will be carried out by OEM rep at his own cost and risk at designated place at NUTECH.</p> <p>(b) Any special requirement for installation, operation and commissioning must be specified in the offer by the supplier.</p>						
<p><b>Training</b></p> <p>03 days OEM operational/ maintenance training at NUTECH</p>						

<p><b>Improvement and Safety Measures</b> Any improvement and safety measures suggested by NUTECH during commissioning are to be resolved by the supplier / manufacturer at no extra cost.</p>						
<p><b>Liability of Supplier</b> (a) Verifiable OEM certificate of authorized dealership Supplier is to provide original OEM certificate of subject equipment bought directly from the manufacturer and being an authorized dealer. (b) In case the equipment supplied is not compatible with specifications, the supplier will be obliged to call his representatives at his own cost for consultation and corrective action</p>						
<p><b>Special Notes</b> (a) Additional requirements for the maintenance of equipment (if any) must be intimated by the supplier in technical offer. (b) Supplier must provide the list of organizations using same equipment in Pakistan (if any). © Equipment must be a standard product of OEM available at web address of OEM. (d) In case of premature failure of the equipment, OEM has to replace / rectify the item free of cost. Required transportation charges would be borne by the supplier. <b>(e) Contract will be awarded on package deal basis.</b></p>						

<p><b>Firm Name:</b> _____</p> <p><b>Signature:</b> _____</p> <p><b>Name:</b> _____</p> <p><b>Designation:</b> _____</p>
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**TECHNICAL OFFER**

**NUTECH / SCM / Computer Lab Eqpt (PSDP) 2020 / TD-113**

**Fill in following essential parameters:-**

1. Validity of Offer: \_\_\_\_\_ Days (Should not be less than **90 days**)
2. Delivery period: \_\_\_\_\_ Days (After placement of order)
3. Country of Origin: \_\_\_\_\_
4. Warranty Period: \_\_\_\_\_

**General**

1. GST Number: \_\_\_\_\_ (Enclose Copy)
2. NTN / CNIC: \_\_\_\_\_ (if exempted, provide valid exemption certificate)

**Payment Terms**

Ser	In FOB Cases	In FOR Cases
a.	80 % through LC on sight.	50% advance payment against BG/CDR/Pay Order/DD
b.	20% after delivery, installation / commissioning, user satisfaction certificate.	50% payment after delivery, installation / commissioning / user satisfaction certificate

**Details of Foreign Principal Information with account details)**

1. Name / Title: \_\_\_\_\_
2. Address: \_\_\_\_\_

OEM Name:	Firm Name:	Signature:
OEM Focal Person:	Firm Focal Person:	Official Seal:
OEM Phone Number:	Firm Phone Number:	Name:
OEM Email Id:	Firm Email Id:	Designation:



Annex CFINANCIAL OFFERNUTECH / SCM / Computer Lab Eqpt (PSDP) 2020 / TD-113

Ser	Item Name/Size	Specification	A/U	Qty Req	Price Per Unit FOB=USD FOR=PKR	Total Price FOB=USD FOR=PKR
1.	IOT Kit	IoT kit must be Arduino compatible board with sensors, Ethernet shield and other common components. <ul style="list-style-type: none"> <li>● 1x W5100 Ethernet shield module</li> <li>● 1 x Photoresist or Sensor Module</li> <li>● 1 x DS18B20 Temperature Sensor Module</li> <li>● 1 x HC-SR04 Ultrasonic sensor module</li> <li>● 1 x DHT11 Temperature &amp; Humidity sensor</li> <li>● 1x BMP180 Barome Electric Pressure Sensor Module</li> <li>● 1 x Sound detection sensor module</li> <li>● 1x Smoke Detection Sensor</li> <li>● 1 x Water Level Detection Sensor</li> <li>● 1 x PIR Motion Sensor HC-SR501</li> <li>● 1 x Servo Motor</li> <li>● 1 x One Channel Relay Module</li> <li>● 1 x Active buzzer module</li> <li>● 1x solder less prototype breadboard</li> <li>● 24 x LED (6 x White, 6 X RED, 6 x YELLOW, 6 x Green)</li> <li>● 20x resistors (200ohm)</li> <li>● 20x resistors (1kohm)</li> <li>● 20x resistors (10kohm)</li> <li>● 5x Resistors (1Mohm)</li> <li>● 1 x 40 Pin jumper wires (15 cm, M to M)</li> <li>● 1 x 20 pin jumper wires (15 cm, M to F)</li> <li>● 2 x 8 pin jumper wires (20 cm, F to F)</li> <li>● 1 x DVD User Manual</li> </ul>	No.	13		

2.	<b>Function Generator</b>	<ul style="list-style-type: none"> <li>● Dual-channel, with bandwidth up to 60-80 MHz, and amplitude up to 20 Vpp.</li> <li>● 150 MSa/s sampling rate, 14-bit vertical resolution, and 16 kpts waveform length</li> <li>● Innovative Easy Pulse technology, capable of generating lower-jitter Pulse waveforms, brings a wide range and extremely high precision in pulse width and rise/fall times adjustment.</li> <li>● Special circuit for Square wave function, can generate Square waves up to 60 MHz with jitter less than 300 ps+0.05 ppm of period.</li> <li>● Plenty of analog and digital modulation types: AM, DSB-AM, FM, PM, FSK, ASK, PSK and PWM.</li> <li>● Sweep and Burst functions.</li> <li>● Harmonics Generator function.</li> <li>● Waveform combining function.</li> <li>● High precision Frequency Counter.</li> <li>● Standard interfaces: USB Host, USB Device (USBTMC), LAN (VXI-11).</li> <li>● Optional interface: GPIB.</li> <li>● Waveform combining function.</li> <li>● 4.3" TFT-LCD display.</li> </ul>	No.	30		
3.	<b>Digital Handheld Multi-meter</b>	<ul style="list-style-type: none"> <li>● 6000 Counts Auto/Manual Ranging</li> <li>● Capacitance, Frequency Measurement</li> <li>● DC Voltage Range: 1000 V</li> <li>● AC Voltage Range: 750 V</li> <li>● Resistance: 60 MΩ 6 ranges</li> <li>● Continuity Beeper/Diode Test</li> <li>● High Energy Fuse for 10A Range</li> <li>● Data Hold/Relative Mode</li> <li>● True RMS</li> </ul>	No.	30		
4.	<b>Digital Oscilloscope (Type 1)</b>	<ul style="list-style-type: none"> <li>● 100-200 MHz bandwidth model.</li> <li>● Real-time sampling rate up to 1 GSa/s.</li> <li>● The newest generation of SPO technology</li> <li>● Waveform capture rate up to 100,000 wfm/s, and 400,000 wfm/s (sequence mode)</li> <li>● Supports 256-level intensity grading and color display modes •Record length up to 14 Mpts</li> <li>● Digital trigger system</li> </ul>	No.	30		

		<ul style="list-style-type: none"> <li>● Intelligent triggers: Edge, Slope, Pulse Width, Window, Runt, Interval, Time out (Dropout), Pattern.</li> <li>● Serial bus triggering and decoding (Standard), supports IIC, SPI, UART, RS232, CAN, and LIN</li> <li>● Video trigger, supports HDTV</li> <li>● 10 types of one-button shortcuts, supports Auto Setup, Default, Cursors, Measure, Roll, History, Display/Persist, Clear Sweep, Zoom and Print</li> <li>● Segmented acquisition (Sequence) mode, dividing the maximum record length into multiple segments (up to 80,000), according to trigger conditions set by the user, with a very small dead time segment to capture the qualifying event</li> <li>● History waveform record (History) function, the maximum recorded waveform length is 80,000 frames</li> <li>● Automatic measurement function for 38 parameters, supports Statistics, Zoom measurement, Gating measurement, Math measurement, History measurement and Ref measurement</li> <li>● True measurement and math of all sampled data points (to 14M)</li> <li>● Math functions (FFT, addition, subtraction, multiplication, division, integration, differential, square root)</li> <li>● Preset key can be customized for user settings or factory “defaults”</li> <li>● Security Erase mode</li> <li>● High Speed hardware based Pass/Fail function</li> <li>● Large 7 inch TFT-LCD display with 800 * 480 resolution</li> <li>● Multiple interface types: USB Host, USB Device (USBTMC), Optional( LAN (VXI-11)), Pass/Fail, Trigger Out</li> <li>● Supports SCPI remote control commands</li> <li>● Supports Multi-language display and embedded online help</li> </ul>				
5.	<b>Power Supply variable</b>	<ul style="list-style-type: none"> <li>● 3 Independent Isolated Output, 195 W</li> <li>● 4 LED Display Sets: 3 digits after decimal point</li> <li>● Minimum Resolution :</li> <li>● 100mV/10mA(GPD-3303D)</li> <li>● Digital panel control(rotary encoder Switch, rubber key with indicator)</li> <li>● User-friendly operation, coarse/fine volume control</li> </ul>	No.	30		

		<ul style="list-style-type: none"> <li>● 4 Sets Save/Recall</li> <li>● Key-Lock</li> <li>● Output on/off</li> <li>● Tracking Series and Parallel mode</li> <li>● Smart cooling fan achieving low noise</li> <li>● USB Standard Interface</li> <li>● Lab view driver</li> </ul>				
6.	<b>Stand Drilling Machine</b>	<ul style="list-style-type: none"> <li>● PCB Drill Stand.</li> <li>● 230VAC 50/60Hz Operation</li> <li>● Continuous duty motor with replaceable brushes</li> <li>● Base plate</li> </ul>	No.	1		
7.	<b>FPGA Kit (Type 1)</b>	<ul style="list-style-type: none"> <li>● Xilinx Spartan-6 LX45 FPGA (XC6SLX45-CSG484-3)</li> <li>● 6,822 slices, each containing four input LUTs and eight flip-flops</li> <li>● 2.1Mbits of fast block RAM</li> <li>● Four clock tiles (eight DCMs &amp; four PLLs)</li> <li>● 58 DSP slices</li> <li>● 500MHz+ clock speeds</li> <li>● 128MB DDR2 SDRAM</li> <li>● 2MB SRAM</li> <li>● 16MB QSPI FLASH for configuration and data storage</li> <li>● 100 MHz Crystal Oscillator</li> <li>● Ships with a 20W power supply and USB cable</li> <li>● 10/100 Ethernet PHY</li> <li>● HDMI Video Output</li> <li>● 12-bit VGA port</li> <li>● I2S Audio codec with line-in, line-out, mic, and headphone</li> <li>● Digilent USB-JTAG circuitry with USB-UART function</li> <li>● 4.3" wide-format vivid color LED backlit LCD screen</li> <li>● 128x32 pixel 0.9" OLED graphic display panel</li> <li>● Three two-digit seven-segment LED displays</li> </ul>	No.	13		

		<ul style="list-style-type: none"> <li>On-board USB2 ports for programming and USB-HID devices (for mouse/keyboard)</li> <li>Keypad with 16 labeled keys (0-F)</li> <li>GPIO: 14 LEDs (10 red, 2 yellow, 2 green), 8 slide switches, 8 DIP switches in 2 groups, and</li> <li>4 push buttons</li> <li>Breadboard with 10 Digital I/Os</li> <li>32 I/Os routed to 40-pin expansion connector (I/Os are shared with Pmod ports)</li> <li>Seven 12-pin Pmod ports with 56 I/Os total</li> </ul> <p><b>Package include:</b></p> <ol style="list-style-type: none"> <li>1)FPGA</li> <li>2) Custom cardboard box with protective foam</li> <li>3) One USB A to micro-B cable</li> <li>4) 20W external power supply</li> </ol>				
8.	<b>MSP-430 development kit</b>	<p><b>Package contains:</b></p> <ul style="list-style-type: none"> <li>1 x Launchpad Development Board</li> <li>1 x M430G2553IN20 Microcontroller</li> <li>1 x M430G2452IN20 Microcontroller</li> <li>1 x 32.768 KHz Crystal</li> <li>2 x 2.54 mm 1x10 Female Header</li> <li>1 x USB-A to Mini-USB Cable</li> <li>2 x Launchpad Stickers</li> <li>14/20-pin DIP socket</li> </ul>	No.	25		
9.	<b>Microcomputer Trainer (Type 1)</b>	<p><b>Type 1: (x10)</b></p> <ul style="list-style-type: none"> <li>Diagrammatic representation of full system</li> <li>72 I/O lines through 8255</li> <li>Powerful monitor program</li> <li>Battery backup for RAM</li> <li>Three channel Timer/Counter using 8253</li> <li>On board 8 channel ADC</li> <li>On board DAC</li> <li>Two modes of operation</li> <li>Keyboard mode</li> </ul>	No.	10		

		<ul style="list-style-type: none"> <li>Serial Mode</li> <li>Facility of downloading and uploading the files from PC</li> <li>All Address and Control lines are provided on 50 pin connector</li> <li>8089 I/O Processor (Optional)</li> <li>8087 Math coprocessor(Optional)</li> <li>Learning Material</li> <li>2 Year Warranty</li> </ul> <b>Technical Specification</b> <ul style="list-style-type: none"> <li>Operating Frequency : 5 MHz</li> <li>RAM : 16 K</li> <li>ROM : 16 K</li> <li>Display : 20 X 2 LCD</li> <li>Input : ASCII Keyboard</li> <li>Dimensions (mm) : W 326 x D 252 x H 52</li> <li>Power Supply : 110V - 260V AC, 50/60Hz</li> <li>Weight : 1.5Kg (approximately)</li> <li>Operating Conditions : 0-40 C, 85% RH</li> <li>Learning Material</li> </ul>				
10.	<b>Digital Multimeter (bench top)</b>	<b>Bench top Multimeter:</b> <ul style="list-style-type: none"> <li>50000 Counts Display</li> <li>Multi-Function: ACV, DCV, ACA, DCA, R, C, Hz, Continuity Beeper, Diode, Test, Max/Min, REL, Hold, dBm</li> <li>Dual Display Indicate ACV and Hz,or DCV(ACV) and dBm</li> <li>Manual or Auto Ranging</li> <li>0.03% DCV Accuracy</li> <li>ACV Measuring Frequency Up to 50kHz</li> <li>AC True RMS or AC + DC True RMS</li> </ul>	No.	10		
11.	<b>Analog &amp; Digital Circuit Design Trainers</b>	Solderless breadboard: <ul style="list-style-type: none"> <li>Interconnected with 2712 tie points, nickel plated contact.</li> </ul> Power Supply: <ul style="list-style-type: none"> <li>Fixed DC output: +5V, 1A.</li> <li>Fixed DC output: -5V, 300mA.</li> <li>Variable DC output: 0V~+15V, 500mA.</li> <li>Variable DC output : 0V~-15V , 500mA</li> </ul> Potentiometers:	No.	10		

		<ul style="list-style-type: none"> <li>● Variable resistor VR1=1KΩ (B)</li> <li>● Variable resistor VR2=100KΩ (B)</li> </ul> Function generator: <ul style="list-style-type: none"> <li>● Frequency ranges : 0.1 Hz~2Hz</li> <li>● (6 ranges) 1 Hz~20Hz</li> <li>● 10Hz~200Hz</li> <li>● 100Hz~2KHz</li> <li>● 1KHz~20KHz</li> <li>● 10KHz~200KHz</li> <li>● Amplitude Sine wave output : 0 Vpp variable</li> <li>● Triangle wave output : 0 ~5Vpp variable</li> <li>● Square wave output : 0 ~15Vpp variable</li> </ul> Universal counter: <ul style="list-style-type: none"> <li>● Frequency range : 1Hz~99.999999MHz ; 10Hz~100.000000MHz</li> <li>● Period range TH&amp;TL : 0.01 s s 1 s ~ 99999999 s</li> <li>● Input sig al :TTL or CMOS level or any level(Vmin≥+2.3Vp 10%)</li> <li>● Display : 8-digit 7-segment LED display</li> <li>● Counter switch : External/ internal</li> </ul> Eight bits data switches Two Digit Segment LED Display Two pulse switch Universal connector fixed holder				
12.	<b>8051 Development Board</b>	<ul style="list-style-type: none"> <li>● AT89S52 Microcontroller IC</li> <li>● USB connector</li> <li>● Power supply.</li> <li>● 7 Segment multiplexed display.</li> <li>● Power switch.</li> <li>● 8 bit LED.</li> <li>● 4x4 matrix keypad.</li> <li>● LCD header (16x2).</li> <li>● EEPROM.</li> <li>● External &amp; internal switch.</li> <li>● Reset switch.</li> <li>● Serial Cable</li> <li>● DB9 female connector.</li> </ul>	No.	17		

13.	<b>PIC Microcontroller development Board</b>	<ul style="list-style-type: none"> <li>● PIC Development Board with following Modules, ICs and Interfaces</li> <li>● PIC Development board with All ICs</li> <li>● Microcontrollers: 16F877,18F2520</li> <li>● LCD 16x2</li> <li>● Seven Segments</li> <li>● RTC battery</li> <li>● DIP Switch</li> <li>● LEDs</li> <li>● 4 x 4 Keypad</li> <li>● Serial Ports</li> <li>● Temperature Sensor LM35</li> <li>● Power adapter 12V, 1A</li> <li>● Single pin female connectors: 20</li> <li>● Serial Cable</li> <li>● USB Cable</li> <li>● PIC Programmer</li> </ul>	No.	17		
14.	<b>Bread board station</b>	<ul style="list-style-type: none"> <li>● Large breadboard with rugged steel backing</li> <li>● 3x 630 tie point terminal strips included</li> <li>● 5x 100 tie point distribution strips included</li> <li>● Four screw terminals for power supply connections included</li> <li>● 4 adhesive rubber feet included</li> </ul>	No.	25		
15.	<b>3D Printer</b>	<ul style="list-style-type: none"> <li>● Combines 3D printing &amp; scanning in one unit all in one (AiO)</li> </ul> <p><b>Printing Properties:</b></p> <ul style="list-style-type: none"> <li>● Print Technology: FFF(Fused Filament Fabrication)</li> <li>● Max. Build Area (WxDxH): 200 x 200 x 190 mm</li> <li>● Layer Resolution: 100 - 400 microns</li> <li>● XY Positioning Precision: X/Y 12.5 micron</li> <li>● Z Positioning Precision: Z : 0.0004 mm</li> <li>● Printing Software: XYZware</li> <li>● Supported File Formats: .stl, .3mf, XYZ format (.3w), .nkg (.stl)</li> <li>● 3D Builder Support: YES</li> <li>● Max. Moving Speed: Max. 120 mm/s</li> </ul> <p><b>Scanning Properties:</b></p> <ul style="list-style-type: none"> <li>● Scan Technology: Slit Laser Triangulation</li> <li>● Scan Size (Ø x H): 3 x 3 cm ~ 15 x 15 cm ( 1.18 x 1.18" ~ 5.9 x 5.9")</li> </ul>	No.	1		



		<ul style="list-style-type: none"> <li>• Scan Resolution: 2140 points/cm<sup>2</sup> (13900 points/inch<sup>2</sup>)</li> <li>• Scan Accuracy: 0.25 mm</li> <li>• Scan Software: XYZscan</li> <li>• Output File Types: stl, .obj, .das</li> <li>• Stepper Motors: 1.8° HB Stepper Motors</li> <li>• User Interface: 2.6" LCM</li> <li>• Language: Multilingual</li> <li>• Connectivity: USB 2.0 Cable</li> <li>• Operating Systems :Windows 7 / 8 / 8.1 / 10 (64 bits) macOS 10.10 / 10.11 / 10.12 / 10.13 / 10.14</li> <li>• Minimum Hardware Requirements: For PC: CPU 4th Generation Intel® Core™ i5 Processor or more / RAM: 8GB / Hard disk space: 20GB or more: For MAC: RAM: 8GB / Hard disk space: 20GB or more</li> </ul> <p><b>Package include:</b> ABS Plastic Filament Cartridge: (x20)</p> <ul style="list-style-type: none"> <li>• Print temperature ranges from 215 to 250 degrees C (419 to 482 degrees F)</li> <li>• 600-g cartridge of 1.75-mm filament</li> <li>• Black(x4), White(x10), Neon Yellow(x4), Sun orange(x2) color</li> </ul> <p>For use with the XYZPrinting 1.0 3D printer (sold separately) Essential running spares and maintenance spares</p>				
16.	<b>Magnetic Levitation Demo Kit</b>	<ul style="list-style-type: none"> <li>• Can float up and spin.</li> <li>• 4 directions LED lights are all light up at the same time, and release the float,</li> <li>• Will be able to float up.</li> <li>• Material: Magnet</li> </ul> <p>Load-bearing: 500g</p>	No.	5		
17.	<b>Robotic Kit (Core Set)</b>	<ul style="list-style-type: none"> <li>• The system includes the EV3 Intelligent Brick</li> <li>• A compact and powerful programmable computer that makes it possible to control motors and collect sensor feedback using the intuitive icon-based programming and data logging software that is delivered with the set.</li> <li>• The set is delivered in a sturdy storage bin with a sorting tray, three Servo Motors, five Sensors (Gyro, Ultrasonic, Color and 2x Touch), a EV3 Rechargeable DC Battery (with charging cable) and connecting cables.</li> </ul>	No.	3		
18.	<b>Arduino UNO R3</b>	<ul style="list-style-type: none"> <li>• ATmega328 microcontroller</li> <li>• Input voltage - 7-12V</li> </ul>	No.	15		

		<ul style="list-style-type: none"> <li>● 14 Digital I/O Pins (6 PWM outputs)</li> <li>● 6 Analog Inputs</li> <li>● 32k Flash Memory</li> <li>● 16 Mhz Clock Speed</li> <li>● USB cable</li> <li>● Transparent Acrylic Box For Arduino UNO R3</li> <li>● Power supply adapter</li> </ul>				
19.	<b>EPROM Simulator</b>	<ul style="list-style-type: none"> <li>● AT2404 EEPROM.</li> <li>● USB Communication with CP2102</li> <li>● Eight 5mm LEDs</li> <li>● Eight Switches in DIP package</li> <li>● LCD 16x2</li> <li>● Four Seven Segment Displays</li> <li>● ADC 0808 with 555 timer for sampling frequency</li> <li>● POT for ADC</li> <li>● Light Sensor(LDR).</li> <li>● Temperature sensor(LM35).</li> <li>● Two Relays for Switching AC devices.</li> <li>● 4x4 Keypad.</li> <li>● L293D Motor Driver for DC and Stepper Motors.</li> <li>● DS1307 based Real Time Clock.</li> <li>● USB cable.</li> <li>● Power Adapter</li> <li>● Single wire female connectors.</li> </ul>	No	2		
<b>Total</b>						

<b>Firm Name:</b>	_____
<b>Signature:</b>	_____
<b>Name:</b>	_____
<b>Designation:</b>	_____

Tender No \_\_\_\_\_

Name of the Firm \_\_\_\_\_

Firm Address \_\_\_\_\_

Date \_\_\_\_\_

Telephone No \_\_\_\_\_

E-Mail \_\_\_\_\_

To,

DD SCM Office  
NUTECH University  
I-12, Main IJP Road,  
Islamabad.

Dear Sir

1. I / We hereby offer to supply to the NUTECH University the stores detailed in schedule to the tender inquiry or such portion thereof as you may specify in the acceptance of tender at the price offered against the said schedule and further agree that this offer will remain valid up to 90 days after opening of Financial offer and will not be withdrawn or altered in terms of rates quoted and the conditions already stated therein or on before this date. I / we shall be bound by a communication of acceptance to be dispatched within the prescribed time.

2. I / we have understood the instructions to Tenders and General Conditions Governing Contract available at NUTECH website and have thoroughly examined the specifications / drawing and / or patterns quoted in the schedule here to and am/are fully aware of the nature of the stores required and my/ our offer is to supply stores strictly in accordance with the requirements.

Yours Faithfully.

(Signature of Tenderer)

Designation

Date:

Individual signing tender and / or other documents connected with a contract must be signed by principal authorized rep/ OEM rep/ Authorized partner firm rep.

**BANK GUARANTEE AGAINST**  
**"ADVANCE/PERFORMANCE/WARRANTY GUARANTEE**  
**Which ever is applicable**

Guarantee No \_\_\_\_\_  
Date: \_\_\_\_\_  
Amount: \_\_\_\_\_  
Valid upto: \_\_\_\_\_

In Favour of:

National University of Technology (NUTECH), IJP Road, I-12, Islamabad.

Subject: **In compliance with terms of Advance/Performance/Warranty**  
**Guarantee Bank Guarantee**

Contract No: \_\_\_\_\_  
dated \_\_\_\_\_

Dear Sir,

1. Whereas your good-self have entered into Contract No: \_\_\_\_\_ dated \_\_\_\_\_ with M/s [Firm Name] Located at [Firm Address], Herein after referred to as our customer and that one of the conditions of the Contract is submission of Bank Guarantee by our customer to your good-self for a sum of [Amount].
2. Incompliance with this stipulation of subj contract, we hereby agree and undertake as under:-
  - a. To pay to you unconditionally on demand and / or without any reference to our Customer an amount not exceeding the sum of [Amount] as would be mentioned in your written Demand Notice.
  - b. To keep this Guarantee in force till [Validity Date].
  - c. That the validity of this Bank guarantee shall be kept two clear year ahead of the original / extended delivery period or the warrantee of the stores which so ever is later in duration on receipt of information from your office. Our liability under this Bank Guarantee shall cease on the closing of banking hours on the last date of validity of this Bank Guarantee. Claim received there after shall not been entertained by us whether you suffer a loss or not. On receipt of payment under this Guarantee, this

documents i.e., Bank Guarantee must be clearly cancelled, discharged and returned to us.

- d. That we shall inform your office regarding termination of the validity of this bank Guarantee on clear month before the actual expiry date of this Bank Guarantee.
- e. That with the consent of our customer you may amend / alter any term / cause of the contractor add / delete any term / clause to / from this contract without making any reference to us. We do not reserve any right to receive any such amendment / alternation or addition / deletion provided such like actions do not increase our monetary liability under this Bank Guarantee which shall be limited only [Amount.....].
- f. That the bank guarantee herein before given shall not be affected by any change in the constitution of the Bank or Customer / Supplier or Vendor.
- g. That this is an unconditional Bank guarantee, which shall be cashed on sight on presentation without any reference to our Customer / Supplier or Vendor.

Signature\_\_\_\_\_

Name\_\_\_\_\_

Desig\_\_\_\_\_

Bank Stamp\_\_\_\_\_

**Note: No changes in the above given BG format shall be accepted.**

**"SELLER'S WARRANTY"**

(To be provided on stamp paper)

Contract No: \_\_\_\_\_

Dated: \_\_\_\_\_

Validity 1 year from the date of final acceptance of the Stores.

1. We hereby guarantee that we are the genuine and original Source of provisioning the Stores to our Buyer. We also undertake that nothing in the manufacturing of these Stores has been obtained through unauthorized means.
2. We hereby warrant and undertake that the Stores and all the associated spares/ accessories supplied under the terms and conditions of the above Contract, are:
  - a. brand new, complete in all respects, possessing good quality and standard workmanship; and
  - b. liable for replacement/rectification free of charge, if during the Warranty period the same are found defective before or under normal use or these do not remain within the limits and tolerances stated under the specifications or in any way not in accordance with the terms of this Contract. All expenses incurred in removal, re-provisioning and reinstallation of such defective Stores or their parts shall also be borne by us.
3. The Warranty shall remain valid for a period of 1 year from the date of final acceptance of the Stores.

Signature\_\_\_\_\_

Name\_\_\_\_\_

Desig\_\_\_\_\_

Stamp\_\_\_\_\_

Date\_\_\_\_\_

**CHECK LIST****(This checked list must be attached with your technical offer, duly filled and****Signed by authorized signatory)****Tender No \_\_\_\_\_****Date \_\_\_\_\_**

1	Tender Processing Fee	a. Tender processing fee ref no _____ b. Bank _____ c. Amount _____		
2	EM/ Bid Bond	a. EM/ Bid Bond ref no _____ b. Bank _____		
3	Form Annex A, A-1, B and C signed by Authorized Signatory		<b>Yes</b>	<b>No</b>
4	Offering specification of items as per IT		<b>Yes</b>	<b>No</b>
5	Quoted Currency as per IT		<b>Yes</b>	<b>No</b>
6	Accounting unit/Qty as per IT		<b>Yes</b>	<b>No</b>
7	Delivery Schedule as per IT		<b>Yes</b>	<b>No</b>
8	Country of origin of store _____			
9	Name of OEM:- _____			
10	Original Performa invoice (Mandatory)		<b>Yes</b>	<b>No</b>
11	Certified that there is no Deviation from IT conditions/ there is deviation from IT condition as per fol details		<b>Yes</b>	<b>No</b>
12	Blacklisting certificate.		<b>Yes</b>	<b>No</b>
13	Verifiable OEM Certificate		<b>Yes</b>	<b>No</b>
14	Warranty Period as per IT		<b>Yes</b>	<b>No</b>
15	ATPs provided		<b>Yes</b>	<b>No</b>

Note: Fill and/or mark Yes/No where required

\_\_\_\_\_

Signature of Firm Auth Signatory