



TENDER DOCUMENTS
ELECTRICAL LAB EQUIPMENT
NUTECH/SCM/Elec Lab-2018/TD-010

NATIONAL UNIVERSITY OF TECHNOLOGY

TENDER NOTICE
NATIONAL UNIVERSITY OF TECHNOLOGY (NUTECH)
Tender No: NUTECH/SCM/Electrical Lab-2018/TD-010

Sealed bids are invited from Government / FBR Registered Firms for the procurement of Electrical laboratory equipment for NUTECH Technology Labs.

1. Tender documents containing terms & conditions and detailed specifications of items can be downloaded from NUTECH web "<https://nutech.edu.pk/scm/>" wef **14-12-2018**.
2. Quotations shall be submitted as per requirement of the tender documents.
3. Bidders will be required to submit bank draft/PO equal to 4% of quoted value as Bid Bond in favor of National University of Technology (NUTECH).
4. Sealed bids with detailed specification should reach on the following address latest by **1100 hours on 14-01-2019**. Late submission will not be entertained.
5. Bids will be opened at **1130 hours on 14-01-2019** at SCM Office.

Deputy Director (Supply Chain Management Office)
NATIONAL UNIVERSITY OF TECHNOLOGY (NUTECH)
UPROAD, SECI-12, ISLAMABAD
Tel: 0092-51-5476768, Ext :178



NATIONAL UNIVERSITY OF TECHNOLOGY
SUPPLY CHAIN MANAGEMENT OFFICE
INVITATION TO TENDER

Submission Date/Time 14-01-2019 at 11 00 hours

1. NUTECH desires to procure the list of item(s)/Store(s) as per **Annexure-A**. Interested bidders are requested to send their bids through courier or deliver at NUTECH under two separate sealed envelopes (placed together in third envelope), marked clearly, "Technical Offer" and "Commercial Offer", respectively to the undersigned, latest by or before above mentioned due date. If due to any unforeseen circumstances, NUTECH establishment remains closed, then the last date of submission will be extended to next working day.
2. Please also note that Technical Offer should contain Annexes-A & B duly filled in (supported with relevant technical literature /details/ catalogues etc). Commercial Offer will contain Annexure-C. Please ensure no space is left blank in the annexes.
3. Following must be noted for this IT (Invitation to Tender):-
 - a. Validity of offer will be 90 days
 - b. Delivery period will be 110 days
 - c. Tender(s) must be accompanied with a Bid Bond in agreement of faithful compliance of the conditions of Contract/Purchase Order. This amount will be equivalent to 4% of the total quoted value. In case of non-acceptance of any offer, the Bid Bond will be returned to the bidder by fastest possible means. The Bid Bond amount submitted by the successful bidder will however, be refunded on effective termination of Contract/ Purchase Order. (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.
 - d. 2 years warranty against 5% bank guarantee will be required from the successful bidders from the date of commissioning.
 - e. Rates should be quoted on free delivery basis at NUTECH Islamabad.
4. We reserve the rights to accept or reject any or all tenders as a whole or in part without assigning any reason whatsoever. The decision in this regard will be firm, final and binding on all bidders.

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NATIONAL UNIVERSITY OF TECHNOLOGY
SUPPLY CHAIN MANGEMENT OFFICE

TECHNICAL OFFER

Annex A

User Reference No **Electrical Lab - 001** Date **07-12-18**

Technical Specification

Ser	Nomen	Description	Country of Origin	A/U	Qty Req	Bidder Compliance			Tech Scrutiny to be done by user	
						Yes	No	Alternate Offer	Accepted	Rejected
									Reason of Rejection	
1.	DC Power Supply	Output Voltage 0-32V, Output Current 5A-10A, Minimum Two Outputs Type: Digital Overload and short circuit protected Supply Voltage 230V Output Connector 4mm safety socket	European	No	24					
2.	Function Generator	Frequency range 10mHz to 13MHz, Output voltage 10mVpp to 10Vpp, Digital display, Waveforms: sine wave, square wave, triangle, pulse, sawtooth, arbitrary,	European	No	24					

		Rise and fall time <10ns, Pulse width adjustment of 100ns to 80s, Overload and Short circuit protection							
3.	Digital Oscilloscope	10Msample standard and 20Msample interleaved, 50000 waveforms/s update rate, 100MHz dual channel Offers an outstanding sensitivity down to 1mV/div, full measurement bandwidth & low noise, Math functions such as +, -, *, /, FFT, Overload and Short circuit protection	European	No	24				
4.	Digital Multimeter Benchtop	Measurement range: DC to 100 kHz, True RMS, Overload and short circuit protection, Resolution: 1 μ V, 100 nA, 1 m Ω , 1 pF, 1 Hz, Basic accuracy: 0.015 % (DC), Mathematic functions: limit testing, min./max., average, offset, DC power, dB, dBm	European	No	24				

5.	Digital Multimeter Handheld	0.05% basic accuracy, True RMS, Auto power off, Overload and Short circuit protection, DC ranges 200 mV to 20 V, Resolution 10 μ V to 100 mV, AC ranges 200 mV, 2 V, 20 V, 200 V, 750 V, Fused and short circuit protected	North American	No	24				
6.	Linear IC Tester	Auto identification mode, Conditional/Uncondition- al loop testing mode, Functional test unit emulates passive circuitry to implement a comprehensive test in a variety of configurations and gain settings, Displays diagnostic information down to individual component pins, Rugged, hand held, battery operated, Built-in membrane keypad, 2 x 16 dot matrix alphanumeric LCD, and high quality 16 pin ZIF socket, Minimum Power Consumption and Testing IC independent, Test parameters: Supply	North American	No	1				

		voltage 2V to 10V IC dependent, OP amp gains open loop, 1,2,11,46 Battery operated							
7.	Digital IC Tester	Comprehensive device library that covers most TTL, CMOS, memory and interface devices, 40 pin capability, Identifies unmarked and house-coded devices, Detects intermittent and temperature related faults, Displays diagnostic information for individual pins, DC input 6V, 850mA max, center positive, regulated, Testing IC dependent, Programmable using Compact Link, Battery operated	North American	No	1				
8.	Digital-Analog Training System	Solderless breadboard, At least 4 Fixed and variable DC power outlets, AT least 2 Control potentiometers, Function generator producing sine, triangle and square waves plus TTL output, Timer/counter measuring frequency	South Korea/ Japan/Taiwan	No	24				

		<p>and time with digital display, Eight bit data switches, Loudspeaker, At least 2 LED displays, DC Power Supply: 5V, -5V, 0V to +15V and 0V to -15V variable, Full short protection, Function Generator: Frequency ranges: 0Hz to 2MHz, Sine wave, triangular, and square wave output: 0 to 5V peak to peak $\pm 10\%$ variable, TTL mode output is 5V $\pm 10\%$ Universal Counter: Two frequency ranges: 1Hz to 100 MHz, 10Hz to 100Hz, Display: 8-digital 7-segment LED display, Counter Switch: External / Internal At least 8 HI/LO toggle switches, Two debounced push-button pulse switches each providing HI and LO complimentary pulse outputs, Eight LED logic indicators light for HI input, remain unlit for no or LO input, 2 speakers, accepting all DIP devices, and user manual</p>							
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9.	Switches	Forwarding bandwidth16 Gbps (2960), 50 Gbps (2960-S), Flash memory32 MB (2960), 64 MB (2960-S) Memory DRAM64 MB (2960), 128 MB (2960-S), Max VLANs64, VLAN IDs4000, Maximum transmission unit (MTU)Up to 9198 bytes, Jumbo frames9016 bytes (2960), 9216 bytes (2960-S)	North American	No	2				
10.	Routers	Embedded hardware based cryptography, Two RJ-45 onboard LAN 10/100/1000 ports EHWIC slot, Memory (DDR2 DRAM): Default/maximum 256 MB/512 MB (license upgradable), USB Flash memory: Default/maximum 256 MB/256 MB, External USB flash USB console port up to 115.2 kbps, Serial console port up to 115.2 kbps, AC input surge current<50A, Typical power 25W,	North American	No	2				

		Maximum power capacity with AC power supply 60W, Maximum power capacity with PoE power supply 70W, Maximum PoE device power capacity with PoE power capacity 80W							
11.	Power Extension Board	At least 8 multi-purpose sockets	Local	No	24				
12.	Discreet Electronics Components	Include complete range resistors, capacitors, inductors, diodes, transistors, commonly used analog & digital ICs, transformers along with Storage Boxes	Local	No	2				
13.	Powered Bread Board	AC transformer unit supplied separately which feeds the full short-circuit and overload protected with +5, -5, +12, -12 Volts supply, Regulated fixed outputs of 5V at 1A, and +15V and -15V at 500mA The +/- supplies to be variable (0 to +/- 15V)	Local	No	24				

Special Instructions

Description	Bidder			Tech Scrutiny to be done by User		
	Yes	No	Alternate Offer	Accepted	Rejected	Reasons of Rejection
Environment Conditions (a) Temperature range: -05°C to +60°C (b) Relative humidity: 0-90% non-condensing						
Warranty period Two years from the date of commissioning. A warranty sticker is to be pasted on each imported item by the Supplier / OEM highlighting Name of Firm, Contract No and date, Description of Store and Warranty validity						
Training Notes Supplier will provide a set of handouts for training on operation and maintenance of the equipment						
Publications Supplier is to provide hard and soft copies (CD) of following manuals. (a) Operational / Maintenance manual: - Qty 01 with Equipment and additional Qty 02 for record purposes and should consist of following sections:- (1) Equipment Description /Operation:- (a)Specifications (b)Description (c)Operation (2) Servicing:- (a)Maintenance Schedule (b)Adjustment / test (c)Removal / Installation procedure (d)Tools Used (3) Trouble shooting guide (4) Cleaning requirements (5) Shipping and receiving (6) Storage requirements (b) IPB (Illustrated Parts Breakdown Manual) should have full parts description along with detailed diagrams (exploded view). (c) Experimental manuals which must contain the list and procedure of the experiments that equipment can perform.						

<p>Spares / Technical Support</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 x years after commissioning</p>						
<p>Additional Spare / Replaceable parts.</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>Physical Inspection Criteria: 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>Commissioning</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>Training</p> <p>01 week OEM operational/ maintenance training at NUTECH</p>						
<p>Improvement and Safety Measures</p> <p>Any improvement and safety measures suggested by NUTECH during commissioning are to be resolved by the supplier / manufacturer at no extra cost.</p>						
<p>Liability of Supplier</p> <p>(a) 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.</p> <p>(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>Special Notes</p> <p>(a) Additional requirements for the maintenance of equipment (if any) must be intimated by the supplier in technical offer.</p> <p>(b) Supplier must provide the list of organizations using same equipment in Pakistan (if any).</p> <p>(c) Equipment must be a standard product of OEM available at web address of OEM.</p> <p>(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.</p>						

Firm Name _____
Signature _____
Name _____
Designation _____



NATIONAL UNIVERSITY OF TECHNOLOGY
SUPPLY CHAIN MANAGEMENT OFFICE

TECHNICAL OFFER

Annex B

User Reference No Electrical Lab - 001 Date 07-12-18

Please fill in the 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/Guarantee: _____ Months from the date of final acceptance of the stores.

General

GST No: _____ (Please enclose copy)

NTN/CNIC: _____ (if exempted, please provide valid exemption certificate)

Payment Terms: (Mandatory to mention) (Please tick/ mention the desired payment term/ mode)

1. Advance payment 30% (Against valid Bank Guarantee)
2. Payment after delivery, installation, commissioning, 70 %
3. Others

Details of Payment Recipient

(1) Name/Title: _____

(2) Address: _____

Signature: _____

Official Seal: _____

Name/Designation: _____



NATIONAL UNIVERSITY OF TECHNOLOGY
SUPPLY CHAIN MANAGEMENT OFFICE

FINANCIAL OFFER

Annex C

User Reference No Electrical Lab - 001 Date 07-12-18

Ser	Nomen	Description	Qty Req	A/U	Unit Price Rs,(excluding GST)	GST (If applicable)	Total amount (Rs)
1.	DC Power Supply	Output Voltage 0-32V Output Current 5A-10A Minimum Two Outputs Type: Digital Overload and short circuit protected Supply Voltage 230V Output Connector 4mm safety socket	24	No			
2.	Function Generator	Frequency range 10mHz to 13MHz, Output voltage 10mVpp to 10Vpp, Digital display, Waveforms: sine wave, square wave, triangle, pulse, sawtooth, arbitrary, Rise and fall time <10ns, Pulse width adjustment of 100ns to 80s, Overload and Short circuit protection	24	No			
3.	Digital Oscilloscope	10Msample standard and 20Msample interleaved,	24	No			

		50000 waveforms/s update rate, 100MHz dual channel Offers an outstanding sensitivity down to 1mV/div, full measurement bandwidth & low noise, Math functions such as +, -, *, /, FFT, Overload and Short circuit protection					
4.	Digital Multimeter Benchtop	Measurement range: DC to 100 kHz, True RMS, Overload and short circuit protection, Resolution: 1 μ V, 100 nA, 1 m Ω , 1 pF, 1 Hz, Basic accuracy: 0.015 % (DC), Mathematic functions: limit testing, min./max., average, offset, DC power, dB, dBm	24	No			
5.	Digital Multimeter Handheld	0.05% basic accuracy, True RMS, Auto power off, Overload and Short circuit protection, DC ranges 200 mV to 20 V, Resolution 10 μ V to 100 mV, AC ranges 200 mV, 2 V, 20 V, 200 V, 750 V, Fused and short circuit protected	24	No			
6.	Linear IC Tester	Auto identification mode,	1	No			

		<p>Conditional/Unconditional loop testing mode, Functional test unit emulates passive circuitry to implement a comprehensive test in a variety of configurations and gain settings, Displays diagnostic information down to individual component pins, Rugged, hand held, battery operated, Built-in membrane keypad, 2 x 16 dot matrix alphanumeric LCD, and high quality 16 pin ZIF socket, Minimum Power Consumption and Testing IC independent, Test parameters: Supply voltage 2V to 10V IC dependent, OP amp gains open loop, 1,2,11,46 Battery operated</p>					
7.	Digital IC Tester	<p>Comprehensive device library that covers most TTL, CMOS, memory and interface devices, 40 pin capability, Identifies unmarked and house-coded devices, Detects intermittent and temperature related faults, Displays diagnostic information for individual</p>	1	No			

		pins, DC input 6V, 850mA max, center positive, regulated, Testing IC dependent, Programmable using Compact Link, Battery operated					
8.	Digital-Analog Training System	Solderless breadboard, At least 4 Fixed and variable DC power outlets, AT least 2 Control potentiometers, Function generator producing sine, triangle and square waves plus TTL output, Timer/counter measuring frequency and time with digital display, Eight bit data switches, Loudspeaker, At least 2 LED displays, DC Power Supply: 5V, - 5V, 0V to +15V and 0V to - 15V variable, Full short protection, Function Generator: Frequency ranges:0Hz to 2MHz, Sine wave, triangular, and square wave output: 0 to 5V peak to peak $\pm 10\%$ variable, TTL mode output is 5V $\pm 10\%$ Universal Counter: Two frequency ranges: 1Hz to 100 MHz, 10Hz to 100Hz,	24	No			

		<p>Display: 8-digital 7-segment LED display, Counter Switch: External / Internal</p> <p>At least 8 HI/LO toggle switches, Two debounced push-button pulse switches each providing HI and LO complimentary pulse outputs, Eight LED logic indicators light for HI input, remain unlit for no or LO input, 2 speakers, accepting all DIP devices, and user manual</p>					
9.	Switches	<p>Forwarding bandwidth16 Gbps (2960), 50 Gbps (2960-S), Flash memory32 MB (2960), 64 MB (2960-S) Memory DRAM64 MB (2960), 128 MB (2960-S), Max VLANs64, VLAN IDs4000, Maximum transmission unit (MTU)Up to 9198 bytes, Jumbo frames9016 bytes (2960), 9216 bytes (2960-S)</p>	2	No			
10.	Routers	<p>Embedded hardware based cryptography, Two RJ-45 onboard LAN 10/100/1000 ports EHWIC slot, Memory (DDR2 DRAM): Default/maximum 256</p>	2	No			

		<p>MB/512 MB (license upgradable), USB Flash memory: Default/maximum 256 MB/256 MB, External USB flash USB console port up to 115.2 kbps, Serial console port up to 115.2 kbps, AC input surge current<50A, Typical power 25W, Maximum power capacity with AC power supply 60W, Maximum power capacity with PoE power supply 70W, Maximum PoE device power capacity with PoE power capacity 80W</p>					
11.	Power Extension Board	At least 8 multi-purpose sockets	24	No			
12.	Discreet Electronics Components	Include complete range resistors, capacitors, inductors, diodes, transistors, commonly used analog & digital ICs, transformers along with Storage Boxes	2	No			
13.	Powered Bread Board	AC transformer unit supplied separately which feeds the full short-circuit and overload protected with +5, -5, +12, -12 Volts supply,	24	No			

		Regulated fixed outputs of 5V at 1A, and +15V and – 15V at 500mA The +/- supplies to be variable (0 to +/- 15V)					
			TOTAL				

Total Value_____

GST _____

Gross Total Value_____

Bid Bond Ref _____

Firm Name_____
Signature_____
Name_____
Designation_____