



TENDER DOCUMENTS

Mechanical Lab Equipment

NUTECH / SCM / Mechanical Lab Eqpt PSDP- 2021 / TD-191

NATIONAL UNIVERSITY OF TECHNOLOGY

TENDER NOTICE

National University of Technology (NUTECH)

NUTECH / SCM / Electrical Lab Eqpt PSDP- 2021 / TD-189,

NUTECH / SCM / Civil Lab Eqpt PSDP- 2021 / TD-190 &

NUTECH / SCM / Mechanical Lab Eqpt PSDP- 2021 / TD-191

1. Sealed bids are invited from Government / FBR Registered Firms for the procurement of Lab Equipment for NUTECH on **CPT Basis**.
2. Tender documents containing terms, conditions and detailed specifications of items (including draft contract) can be downloaded from NUTECH website "<https://nutech.edu.pk/downloads/procurement/scm-tenders/> w.e.f **08 January 2021**.
3. Quotations shall be submitted as per requirement of the tender documents.
4. 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).
5. Submit Rs 1500/- as Tender fee in favor of NUTECH NBP Account Main Branch, Civic Center G-6, Islamabad (**Development Project Security A/c No. 0341-00316702674-7**). Please attach bank receipt with technical offer. Offers will not be entertained without payment of processing fee.
6. Details for Submission & Opening of bids for tender are as under:-

Ser	Description	Submission	Tender Opening	Completion Days
a.	Electrical Lab Equipment (TD-189)	1030 hrs on 10 Feb 2021	1100 hrs on 10 Feb 2021	120 Days
b.	Civil Lab Equipment (TD-190)	1200 hrs on 10 Feb 2021	1230 hrs on 10 Feb 2021	120 Days
c.	Mechanical Lab Equipment (TD-191)	1030 hrs on 11 Feb 2021	1100 hrs on 11 Feb 2021	120 Days

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: 1030 hours, 11 February 2021

1. NUTECH desires to procure the list of item(s) / Store(s) on **CPT** basis (**FOB**). 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-furnished 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 (IN USD only) in figures as well as in words along 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 **1030 hours on 11 February 2021**. 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 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. **With drawal of offer.** If the firm withdraws its offer within validity period the competent authority may place such firm under embargo for a period, which may be extended up to one year. Moreover, the Earnest Money of the firm will be confiscated.

8. **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.
- 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.

9. **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.

10. **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.

11. **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.

12. **Terms of Payment/ LC Charges**

(In FOB cases)

- a. 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.

In FOR cases

- b. 20% advance payment will be made to the Seller on provision of unconditional Bank Guarantee/ CDR/ DD/ Pay order. Advance BG/CDR/DD/Pay order will be submitted at the time of signing the contract.
- c. 80% payment will made to the Seller after receipt and confirming the correctness of ordered specifications, installation, commissioning OR as the case may be i.e through Inland LC.

13. **Warranty/ Bank Guarantee (BG). 2 Years** against **5% Bank Guarantee/CDR/Pay Order/Bank Draft** of the store value will be required from the successful bidders from the date of commissioning as performance bond. BG submitted shall remain valid for up to 60 days beyond completion of warranty period.

14. **Insurance:-** Insurance will be NUTECH's responsibility through NICL.
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 **120 Days** after opening of LC.
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, pandemic 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. **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).

22. **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.

23. **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.

24. **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.

25. **Change In Specification / Mfr / Model.** No alternation marked/brand and quality of store will be entertained after the tender have been opened.

26. **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.

27. **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

28. **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
- k. Warranty / Guarantee Period

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

29. **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. (On Judicial Paper)
- c. Rates should be quoted on Free Delivery basis at NUTECH Islamabad.
- d. 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.

- e. 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.
- f. 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.
- g. An appropriate amount may be paid for mobilization against Bank Guarantee/CDR/Demand Draft/Pay Order.
- h. Firms with previous pending/outstanding projects/business and unsatisfactory performance with NUTECH may not be considered for award of any further business.

Deputy Director
Supply Chain Management Office

Annex-A**Technical Specifications****NUTECH / SCM / Mechanical Lab Eqpt PSDP- 2021 / TD-191**

Ser	Part No	Items	Description	A/U	Country of Origin	Qty Req	Bidder Compliance	
							Yes	No
1		CNC Lathe Machine	<ul style="list-style-type: none"> • Swing over bed: 390 mm or better • Swing over cross slide: 245 mm or better • Min. processing length: 950 mm • Guide way width: 400 mm or better • Spindle bore: 48 mm or better • Diameter of the bar: 40 mm or better • Spindle speed: 150-2500 rpm • Spindle nose A2-6, A2-8 or equivalent • Spindle motor power: Approx. 5.5-7kw • X/Z axis position accuracy: 0.01-0.015 mm or better • X/Z axis repeatability 0.012-0.013 or better • X/Z axis motor torque: 4-6 N.m or better • X/Z axis rapid feeding speed: 8-10 m/min or better • Tool post type 4-station electric turret • Tool bar section: Approx. 20*20mm • Tailstock sleeve dia: Φ70mm or better • Tailstock sleeve travel: 100mm or better • Tailstock taper MT4# • Siemens controller and all axes Siemens motor • Siemens Spindle motor <p>Or Equivalent</p> <p><i>Ranges and values are approximate and</i></p>	No	Imported	01		

			<p><i>close values will be acceptable</i></p> <p>Accessories:</p> <ul style="list-style-type: none"> • 4 station electric turret • Manual chuck • Manual tailstock • integrated automatic lubrication system • coolant system • lighting system • 10" through hole hydraulic chuck • steady rest • Follow rest • Auto chip conveyor 					
2.		CNC milling Machine	<ul style="list-style-type: none"> • 3-axis CNC Milling Machine • High visibility interlocking guard • Programmable spindle speeds & feed-rates • Worktable size: 800x250mm or better • T-slot (NxWxD) 3x14 mm or better • X axis travel: 450mm or more • Y axis travel 300mm or more • Z axis travel: 450 mm or more • Distance from spindle nose to worktable surface: 100-470 mm or better • Distance from spindle center to column: 350 mm or better • Rapid feed speed(X/Y/Z) 15/15/15 m/min or better • Spindle taper BT40 • Spindle speed range. 20-5500 rpm or better • Siemens Controller and all axes Siemens motor <p>Or Equivalent</p>	No	Imported	01		

			<p>Ranges and values are approximate and close values will be acceptable</p> <p>Accessories</p> <ul style="list-style-type: none"> • BT40 spindle • CNC controller • MPG (Manual Pulse Generator) • Coolant system • Auto lubricating • Working lamp • Work holding clamp • Spray mist coolant • Manual lubricating system • Set of milling tools 					
3.		Vertical Machining Center	<ul style="list-style-type: none"> • Table size. 1000x500 mm or better • Table load 600 KG or better • T slot qty-width*distance 5-18*100 or better • Spindle speed: 8000 rpm or more • Spindle nose to table surface: 175-600 mm or better • Spindle center to Column surface: 575 mm or more • Spindle taper BT40 • X axis travel: Min. 750mm • Y axis travel: Min. 500mm • Z axis travel: Min. 500mm • X/Y/Z axis rapid feed: min. 48/48/48m/min • Feeding rate 10 m/min or better • Tool changer type 16 tools Umbrella type • Tool length 250 mm or better • Tool diameter. 100 mm or better • Tool (knife) weight 7 kg or better • Positioning accuracy ± 0.007 or better 	No	Imported	02		

		<ul style="list-style-type: none"> • Repeat positioning accuracy: ± 0.004 or better • FANUC Control system (Controller) and FANUC Drive Motors • Germany FAG or NSK bearings <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p>Accessories</p> <ul style="list-style-type: none"> • Full-cover protection • Spindle oil cooling • Automatic lubrication system • Coolant system, (water and air cooling) • Tri-color indication lamp, • Air gun, • X,Y,Z linear guide ways • Work lamp • Telescopic cover • Movable pulse generator • Heat exchanger • Headstock balancing system • Automatic chip conveyor& chip bucket(Chain type) • Spindle center water spray • Spindle Oil cooler • USB and Internet interface • Environment Control System for electricity cabinet • 4TH Axis 145 mm center height • Tool Box <p>Foreign Training Required:</p>					
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			<p>Factory acceptance test and 5 days training for two nominated faculty members before shipment at OEM expenses (boarding, messing, lodging and travelling) or Training to NUTECH team by OEM rep (Foreigner) at NUTECH for 03 days</p> <p>Estimates to be quoted separately</p>					
4.		<p>Working Model of Hybrid Petrol Engine</p>	<ul style="list-style-type: none"> • 4 cylinders • Displacement: 1.5L • DOHC overhead camshaft • 4 valves per cylinder with roller chain • VVT-I system (Variable Valve Timing with intelligence) electronically controlled intake valves • Multi-point electronic injection with throttle • Electrical engine, Epicyclical engine • Generator, Transmission belt (CTV) • Gears • Exhaust manifold with Lambda probe • Hybrid (gasoline + electric) engine simulator to be equipped with fuel, cooling, intake, exhaust panel <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p>	No	North America/Europe	01		
5.		<p>Engine Test Bed with four stroke diesel and petrol Engines, Digital Volumetric Fuel Gauge, Engine Cycle Analysis System and DAQ, and Exhaust Gas Calorimeter</p>	<p>Engine Test Bed</p> <ul style="list-style-type: none"> • For detailed investigations into the fundamental features of internal combustion engines like characteristics of four-stroke, single-cylinder petrol and diesel engines • Heavy fabricated portable bed • Bench-mounted instrumentation frame • Trunnion-mounted hydraulic dynamometer. • Engine mounting and changeover should be easy through self-sealing couplings • DAQ system 	No	North America/Europe	01		

		<ul style="list-style-type: none"> • Air box for airflow measurement • K-type thermocouple and pressure tapping to measure ambient conditions at the inlet • Hydraulic Dynamometer with controllable flow rates through an accurate needle valve • Electronic load cell with digital display for torque measurement • Maximum absorption: 7.5 kW @ 7000 rev/min or better • Typical engine range: 3 to 4 kW, 3000 rev/min, 150 to 250 cc • Speed measurement: Proximity pick up and digital display • Pressure transducer and digital display • Ambient air temperature and barometric pressure measurement using thermocouple, pressure transducer and digital display • Exhaust temperature measurement through engine thermocouple and digital display • Torque and Speed Display on Data Acquisition and Dynamometer Torque and Speed <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Torque, speed and power relationship • Brake mean effective pressure • Engine performance curves • Air and fuel consumption • Volumetric and thermal efficiencies • Willans line for a diesel engine • Plotting p-θ and p-V diagrams • Engine cycle analysis • Indicated mean effective pressure and power • Comparison of brake and indicated mean effective pressures • Mechanical efficiency of the engine <p>Four Stroke Petrol Engine:-</p> <ul style="list-style-type: none"> • Single-cylinder four stroke water cooled, petrol 					
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		<p>engine</p> <ul style="list-style-type: none"> • Electric starter, Electric, flywheel magneto • Includes exhaust thermocouple • Self-sealing couplings for fuel lines • Engine capacity not less than 150 cc • Rated Power output 4 kW or better • Maximum Power output approximately 5 kW • Air cooled • Compression ratio approximately 8:1 • Oil Type SAE30 or Multigrade 10W-30 • Carburetor, fixed jet with integral float chamber <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Plotting p-θ and p-V diagrams • Engine cycle analysis • Indicated mean effective pressure and power • Comparison of brake and indicated mean effective pressures • Mechanical efficiency of the engine <p>Four-Stroke Diesel Engine</p> <ul style="list-style-type: none"> • Exhaust thermocouple • Self-sealing couplings for fuel lines • Fuel: Diesel to minimum specifications EN590, BS2869 A1/A2 or ASTM D 975 - 1D/2D • Engine capacity not less than 200 cc • Rated Power output 3 kW or better • Power not less than 3.5 kW (4.8 hp) at 3600 rev/min • Air cooled • Compression ratio 20:1 or better • Oil Type Multigrade SAE 5W-40 <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Plotting p-θ and p-V diagrams 					
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		<ul style="list-style-type: none"> • Engine cycle analysis • Indicated mean effective pressure and power • Comparison of brake and indicated mean effective pressures • Mechanical efficiency of the engine <p>Digital Volumetric Fuel Gauge :-</p> <ul style="list-style-type: none"> • For use with the engine test set above • Calculates and displays fuel consumption through DAQ • Quick and efficient connection and disconnection of fuel lines • Fuel gauge consisting fuel gauge and sensors • Resolution not more than 0.1 ml/min <p>Engine Cycle Analysis System</p> <ul style="list-style-type: none"> • Comprises Engine Cycle Analyzer, Cylinder Press Transducer and Crank Angle Encoder • Capable of measuring internal combustion engine cylinder pressure and crank angle • Compatible with DAQ and suitable for independent use also • Real time display of p-θ plots and p-V plots with snap-shot, replay and animation functions • Animations of crank, piston, inlet and exhaust valve positions • Microprocessor based signal conditioning unit with high-speed PC interface • LED indicators to show the processor readiness, encoder top dead center position and PC communication status • Cylinder head pressure transducer and a crank angle encoder • Ground isolated quartz crystal Pressure Transducer with high temperature sensor • Shaft encoder with 360 pulses per revolution. 1 					
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			<p>degree resolution</p> <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Investigations into a variety of internal combustion engine characteristics, like <ul style="list-style-type: none"> ○ Thermodynamic cycle of an internal combustion engine ○ Calculation of indicated mean effective pressure and indicated power ○ Comparison of indicated mean effective pressure and brake mean effective pressure ○ Mechanical efficiency of the test engine ○ Combustion analysis <p>Exhaust Gas Calorimeter</p> <ul style="list-style-type: none"> • Temperature and flow display unit • Heat exchanger • Stainless steel shell and multi-tube with pressure-relief valve • Temperature measurement: <ul style="list-style-type: none"> • 4 x Thermocouples with digital display • Flow measurement: <ul style="list-style-type: none"> • Turbine flow meter with digital display Flow control: Hand-operated valve • Finned tubes: <ul style="list-style-type: none"> • Material: stainless steel. • Length: 110 cm or higher • Finned area: 520 cm² or better • Rotameter for cooling water flow measurement • Sensor with digital display: temperatures for exhaust gas and cooling water at inlets and outlets. • Calorimetric test through Software <p>Or Equivalent</p>					
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			<i>Ranges and values are approximate and close values will be acceptable</i>					
6.		Determination of Gear Efficiency	<ul style="list-style-type: none"> • Three-phase AC motor with variable speed of, power output: 0.20kW, speed: 0-2500 revolutions min-1 • Magnetic particle brake, rated braking torque at exciting current 0-0.2 A, 0-8Nm • Two-stage spur gear, transmission ratio should be minimum of 13.5 torque: min, 23.4Nm • Worm gear with minimum of transmission ratio: 15, torque: 10Nm, worm: z=2, worm gear: z=40 • Measuring ranges, speed: 0...3000min-1, force: 0...100N • Unit should be compatible with the following electric combinations 230V, 50Hz, 1 phase 230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase • Efficiency of the unit should be displayed in digital form <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p><u>Experimental Capabilities</u></p> <ul style="list-style-type: none"> • Determination of the mechanical efficiency of gears by comparing the mechanical driving and braking power for a) Spur gears b) Worm gears c) Helical gears Determine the speed ratios over gears teeth ratios • Determine the torque variations over the applied loading conditions • Determine of the backlash over a) spur gears b) helical gears c) worm gears • Predictions of transmission ratios 	No	North America/Europe	01		

			<ul style="list-style-type: none"> • Predictions of torque transmissions 					
7		Engine Combustion Visualization Apparatus	<ul style="list-style-type: none"> • For visualization of combustion process inside the engine cylinder • Frame made of anodized aluminum • Visualization of combustion flame between TDC and BDC • Unit must be compatible with 4 stroke diesel and petrol engine • Engine max output: 4HP • Engine rated speed: 3600RPM • Temperature of combustion visualization flame: 500°C-1000°C • Estimation of flame temperature and soot distribution • Estimation of flame area on the addition or reduction of fuel during the combustion process • Crank angle at the start of combustion flame should be between 5~20 degree. • Transient mixing of air fuel mixture before TDC • Completion of air fuel mixing after TDC • Swirling of flame over the piston surface • Flow dynamics of flame during the combustion process • Laser based/optical based visual measurements • Propagation of flame from TDC to BDC during complete combustion stroke • Transmission of electromagnetic radiation during the combustion process with the help of optical fibers ranging from 8000-1200 fibers • Conversion of optical into electrical signals with temporal resolution of max 200KHz • Recording of flam propagation during combustion <p>Or Equivalent</p>	No	North America/Europe	01		

			<p>Ranges and values are approximate and close values will be acceptable</p> <p>Experimental Capabilities</p> <ul style="list-style-type: none"> • Measurement of start of combustion flame after TDC • Measurement of end of flame before BDC • Measurement of flow propagation of the flow • Visualization of combustion thrust profile • Calculation of volumetric air fuel ratio • Measurement of thermal gradients during the combustion • Measurement of temperature profile for the top of piston surface after completion of four stroke cycle • Measurement of back pressure flame after striking to the piston surface • Visualization of transient flame propagation • Measurement of flame temperature 					
8		Shearing Machine	<ul style="list-style-type: none"> • High quality hardened and grinded top and bottom blade • Machine with four cutting edge collapsible figure protection system • Adjustable cutting stroke length • Shearing thickness 4mm or better • Shearing width 2000 mm or better • Thought height 80 mm or better • Back gauge range 350mm or better • shearing angle degree 0.5- 1, 3' • No of stroke per minute 14 or more • Main motor Siemens • Control System: LCD display 	No	Imported	02		

			<p>Programmable memory Up to 25 programs MIN</p> <ul style="list-style-type: none"> • One key backup/restore of following parameters and programs <ul style="list-style-type: none"> ○ Mm/inch ○ Auto reference search ○ Power-down memorization ○ Diagnosis function <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p>Accessories:</p> <ul style="list-style-type: none"> • Foot switch • Front carrier • Grease gun • Feeler • Seal Ring • Key for electronic box and main power • Hydraulic oil • One meter front support arm • Rear photocell safety system • Motorized back gauge • Two pushdown cylinders 					
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<p>Firm Name: _____</p> <p>Signature: _____</p> <p>Name: _____</p> <p>Designation: _____</p>
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Annex A-1**Special Instructions**

Description	Bidder		Tech Scrutiny to be done by User		
	Yes	No	Accepted	Rejected	Reasons of Rejection
Environment Conditions (a) Temperature range: 05°C to +40°C (b) Relative humidity: 0-70% non-condensing					
Warranty period In addition to IT Clause 13. 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 Required (b) 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. (d) Recorded video lectures of the equipment explaining use / functions / maximum possible experiments.					
Spares / Technical Support (a) Supplier to have in-country spares / technical support and ensure spares and					

<p>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>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).</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 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: 01 week OEM operational/ maintenance training at NUTECH by rep of OEM (local supplier).</p> <p>Foreign Training (Only for Ser 3): Foreign Training at OEM Premises.</p>					
<p>Improvement and Safety Measures</p> <p>Any improvement and safety measures suggested by NUTECH during</p>					

<p>commissioning are to be resolved by the supplier / manufacturer at no extra cost.</p>					
<p>Liability of Supplier (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. (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 (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). (c) 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.</p>					

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

**Annex-B****TECHNICAL OFFER****NUTECH / SCM / Mechanical Lab Eqpt PSDP- 2021 / TD-191****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 (In continuation of IT Document clause 12)

1. 80 % through LC on sight.
2. 20% 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 / Mechanical Lab Eqpt PSDP- 2021 / TD-191

Ser	Part No	Item Name/Size	Specification	A/U	Qty Req	Price Per Unit (USD)	Total Price (USD)
1		CNC Lathe Machine	<ul style="list-style-type: none"> • Swing over bed: 390 mm or better • Swing over cross slide: 245 mm or better • Min. processing length: 950 mm • Guide way width: 400 mm or better • Spindle bore: 48 mm or better • Diameter of the bar: 40 mm or better • Spindle speed: 150-2500 rpm • Spindle nose A2-6, A2-8 or equivalent • Spindle motor power: Approx. 5.5-7kw • X/Z axis position accuracy: 0.01-0.015 mm or better • X/Z axis repeatability 0.012-0.013 or better • X/Z axis motor torque: 4-6 N.m or better • X/Z axis rapid feeding speed: 8-10 m/min or better • Tool post type 4-station electric turret • Tool bar section: Approx. 20*20mm • Tailstock sleeve dia: Φ70mm or better • Tailstock sleeve travel: 100mm or better • Tailstock taper MT4# • Siemens controller and all axes Siemens motor • Siemens Spindle motor <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will</i></p>	No	01		

			<p>be acceptable</p> <p>Accessories:</p> <ul style="list-style-type: none"> • 4 station electric turret • Manual chuck • Manual tailstock • integrated automatic lubrication system • coolant system • lighting system • 10" through hole hydraulic chuck • steady rest • Follow rest • Auto chip conveyer 				
2.		CNC milling Machine	<ul style="list-style-type: none"> • 3-axis CNC Milling Machine • High visibility interlocking guard • Programmable spindle speeds & feed-rates • Worktable size: 800x250mm or better • T-slot (NxWxD) 3x14 mm or better • X axis travel: 450mm or more • Y axis travel 300mm or more • Z axis travel: 450 mm or more • Distance from spindle nose to worktable surface: 100-470 mm or better • Distance from spindle center to column: 350 mm or better • Rapid feed speed(X/Y/Z) 15/15/15 m/min or better • Spindle taper BT40 • Spindle speed range. 20-5500 rpm or better • Siemens Controller and all axes Siemens motor <p>Or Equivalent</p>	No	01		

			<p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p>Accessories</p> <ul style="list-style-type: none"> • BT40 spindle • CNC controller • MPG (Manual Pulse Generator) • Coolant system • Auto lubricating • Working lamp • Work holding clamp • Spray mist coolant • Manual lubricating system • Set of milling tools 				
3.		Vertical Machining Center	<ul style="list-style-type: none"> • Table size. 1000x500 mm or better • Table load 600 KG or better • T slot qty-width*distance 5-18*100 or better • Spindle speed: 8000 rpm or more • Spindle nose to table surface: 175-600 mm or better • Spindle center to Column surface: 575 mm or more • Spindle taper BT40 • X axis travel: Min. 750mm • Y axis travel: Min. 500mm • Z axis travel: Min. 500mm • X/Y/Z axis rapid feed: min. 48/48/48m/min • Feeding rate 10 m/min or better • Tool changer type 16 tools Umbrella type • Tool length 250 mm or better • Tool diameter. 100 mm or better • Tool (knife) weight 7 kg or better • Positioning accuracy ± 0.007 or better 	No	02		

			<ul style="list-style-type: none"> • Repeat positioning accuracy: ± 0.004 or better • FANUC Control system (Controller) and FANUC Drive Motors • Germany FAG or NSK bearings <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p>Accessories</p> <ul style="list-style-type: none"> • Full-cover protection • Spindle oil cooling • Automatic lubrication system • Coolant system, (water and air cooling) • Tri-color indication lamp, • Air gun, • X,Y,Z linear guide ways • Work lamp • Telescopic cover • Movable pulse generator • Heat exchanger • Headstock balancing system • Automatic chip conveyor& chip bucket(Chain type) • Spindle center water spray • Spindle Oil cooler • USB and Internet interface • Environment Control System for electricity cabinet • 4TH Axis 145 mm center height • Tool Box <p>Foreign Training Required:</p>				
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			<p>Factory acceptance test and 5 days training for two nominated faculty members before shipment at OEM expenses (boarding, messing, lodging and travelling) or Training to NUTECH team by OEM rep (Foreigner) at NUTECH for 03 days</p> <p>Estimates to be quoted separately</p>				
4.		Working Model of Hybrid Petrol Engine	<ul style="list-style-type: none"> • 4 cylinders • Displacement: 1.5L • DOHC overhead camshaft • 4 valves per cylinder with roller chain • VVT-I system (Variable Valve Timing with intelligence) electronically controlled intake valves • Multi-point electronic injection with throttle • Electrical engine, Epicyclical engine • Generator, Transmission belt (CTV) • Gears • Exhaust manifold with Lambda probe • Hybrid (gasoline + electric) engine simulator to be equipped with fuel, cooling, intake, exhaust panel <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p>	No	01		
5.		Engine Test Bed with four stroke diesel and petrol Engines, Digital Volumetric Fuel Gauge, Engine Cycle Analysis System and	<p>Engine Test Bed</p> <ul style="list-style-type: none"> • For detailed investigations into the fundamental features of internal combustion engines like characteristics of four-stroke, single-cylinder petrol and diesel engines • Heavy fabricated portable bed • Bench-mounted instrumentation frame • Trunnion-mounted hydraulic dynamometer. • Engine mounting and changeover should be easy through self-sealing couplings • DAQ system • Air box for airflow measurement 	No	01		

		<p>DAQ, and Exhaust Gas Calorimeter</p>	<ul style="list-style-type: none"> • K-type thermocouple and pressure tapping to measure ambient conditions at the inlet • Hydraulic Dynamometer with controllable flow rates through an accurate needle valve • Electronic load cell with digital display for torque measurement • Maximum absorption: 7.5 kW @ 7000 rev/min or better • Typical engine range: 3 to 4 kW, 3000 rev/min, 150 to 250 cc • Speed measurement: Proximity pick up and digital display • Pressure transducer and digital display • Ambient air temperature and barometric pressure measurement using thermocouple, pressure transducer and digital display • Exhaust temperature measurement through engine thermocouple and digital display • Torque and Speed Display on Data Acquisition and Dynamometer Torque and Speed <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Torque, speed and power relationship • Brake mean effective pressure • Engine performance curves • Air and fuel consumption • Volumetric and thermal efficiencies • Willans line for a diesel engine • Plotting p-θ and p-V diagrams • Engine cycle analysis • Indicated mean effective pressure and power • Comparison of brake and indicated mean effective pressures • Mechanical efficiency of the engine <p>Four Stroke Petrol Engine:-</p> <ul style="list-style-type: none"> • Single-cylinder four stroke water cooled, petrol engine • Electric starter, Electric, flywheel magneto • Includes exhaust thermocouple 				
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		<ul style="list-style-type: none"> • Self-sealing couplings for fuel lines • Engine capacity not less than 150 cc • Rated Power output 4 kW or better • Maximum Power output approximately 5 kW • Air cooled • Compression ratio approximately 8:1 • Oil Type SAE30 or Multigrade 10W-30 • Carburetor, fixed jet with integral float chamber <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Plotting p-θ and p-V diagrams • Engine cycle analysis • Indicated mean effective pressure and power • Comparison of brake and indicated mean effective pressures • Mechanical efficiency of the engine <p>Four-Stroke Diesel Engine</p> <ul style="list-style-type: none"> • Exhaust thermocouple • Self-sealing couplings for fuel lines • Fuel: Diesel to minimum specifications EN590, BS2869 A1/A2 or ASTM D 975 - 1D/2D • Engine capacity not less than 200 cc • Rated Power output 3 kW or better • Power not less than 3.5 kW (4.8 hp) at 3600 rev/min • Air cooled • Compression ratio 20:1 or better • Oil Type Multigrade SAE 5W-40 <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Plotting p-θ and p-V diagrams • Engine cycle analysis • Indicated mean effective pressure and power 				
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		<ul style="list-style-type: none"> • Comparison of brake and indicated mean effective pressures • Mechanical efficiency of the engine <p>Digital Volumetric Fuel Gauge :-</p> <ul style="list-style-type: none"> • For use with the engine test set above • Calculates and displays fuel consumption through DAQ • Quick and efficient connection and disconnection of fuel lines • Fuel gauge consisting fuel gauge and sensors • Resolution not more than 0.1 ml/min <p>Engine Cycle Analysis System</p> <ul style="list-style-type: none"> • Comprises Engine Cycle Analyzer, Cylinder Press Transducer and Crank Angle Encoder • Capable of measuring internal combustion engine cylinder pressure and crank angle • Compatible with DAQ and suitable for independent use also • Real time display of p-θ plots and p-V plots with snap-shot, replay and animation functions • Animations of crank, piston, inlet and exhaust valve positions • Microprocessor based signal conditioning unit with high-speed PC interface • LED indicators to show the processor readiness, encoder top dead center position and PC communication status • Cylinder head pressure transducer and a crank angle encoder • Ground isolated quartz crystal Pressure Transducer with high temperature sensor • Shaft encoder with 360 pulses per revolution. 1 degree resolution <p>Experimental Capabilities:-</p> <ul style="list-style-type: none"> • Investigations into a variety of internal combustion engine characteristics, like 				
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			<ul style="list-style-type: none"> ○ Thermodynamic cycle of an internal combustion engine ○ Calculation of indicated mean effective pressure and indicated power ○ Comparison of indicated mean effective pressure and brake mean effective pressure ○ Mechanical efficiency of the test engine ○ Combustion analysis <p>Exhaust Gas Calorimeter</p> <ul style="list-style-type: none"> ● Temperature and flow display unit ● Heat exchanger ● Stainless steel shell and multi-tube with pressure-relief valve ● Temperature measurement: ● 4 x Thermocouples with digital display ● Flow measurement: ● Turbine flow meter with digital display Flow control: Hand-operated valve ● Finned tubes: ● Material: stainless steel. ● Length: 110 cm or higher ● Finned area: 520 cm² or better ● Rotameter for cooling water flow measurement ● Sensor with digital display: temperatures for exhaust gas and cooling water at inlets and outlets. ● Calorimetric test through Software <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p>				
6.		Determination of Gear Efficiency	<ul style="list-style-type: none"> ● Three-phase AC motor with variable speed of, power output: 0.20kW, speed: 0-2500 revolutions min-1 ● Magnetic particle brake, rated braking torque at exciting current 0-0.2 A, 0-8Nm ● Two-stage spur gear, transmission ratio should be minimum of 	No	01		

		<p>13.5 torque: min, 23.4Nm</p> <ul style="list-style-type: none"> • Worm gear with minimum of transmission ratio: 15, torque: 10Nm, worm: z=2, worm gear: z=40 • Measuring ranges, speed: 0...3000min⁻¹, force: 0...100N • Unit should be compatible with the following electric combinations 230V, 50Hz, 1 phase 230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase • Efficiency of the unit should be displayed in digital form <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p><u>Experimental Capabilities</u></p> <ul style="list-style-type: none"> • Determination of the mechanical efficiency of gears by comparing the mechanical driving and braking power for a) Spur gears b) Worm gears c) Helical gears Determine the speed ratios over gears teeth ratios • Determine the torque variations over the applied loading conditions • Determine of the backlash over a) spur gears b) helical gears c) worm gears • Predictions of transmission ratios • Predictions of torque transmissions 				
7	Engine Combustion Visualization Apparatus	<ul style="list-style-type: none"> • For visualization of combustion process inside the engine cylinder • Frame made of anodized aluminum • Visualization of combustion flame between TDC and BDC • Unit must be compatible with 4 stroke diesel and petrol engine • Engine max output: 4HP • Engine rated speed: 3600RPM 	No	01		

			<ul style="list-style-type: none"> • Temperature of combustion visualization flame: 500°C-1000°C • Estimation of flame temperature and soot distribution • Estimation of flame area on the addition or reduction of fuel during the combustion process • Crank angle at the start of combustion flame should be between 5~20 degree. • Transient mixing of air fuel mixture before TDC • Completion of air fuel mixing after TDC • Swirling of flame over the piston surface • Flow dynamics of flame during the combustion process • Laser based/optical based visual measurements • Propagation of flame from TDC to BDC during complete combustion stroke • Transmission of electromagnetic radiation during the combustion process with the help of optical fibers ranging from 8000-1200 fibers • Conversion of optical into electrical signals with temporal resolution of max 200KHz • Recording of flam propagation during combustion <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p>Experimental Capabilities</p> <ul style="list-style-type: none"> • Measurement of start of combustion flame after TDC • Measurement of end of flame before BDC • Measurement of flow propagation of the flow • Visualization of combustion thrust profile • Calculation of volumetric air fuel ratio • Measurement of thermal gradients during the combustion • Measurement of temperature profile for the top of piston 				
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			<p>surface after completion of four stroke cycle</p> <ul style="list-style-type: none"> • Measurement of back pressure flame after striking to the piston surface • Visualization of transient flame propagation • Measurement of flame temperature 				
8		Shearing Machine	<ul style="list-style-type: none"> • High quality hardened and grinded top and bottom blade • Machine with four cutting edge collapsible figure protection system • Adjustable cutting stroke length • Shearing thickness 4mm or better • Shearing width 2000 mm or better • Thought height 80 mm or better • Back gauge range 350mm or better • shearing angle degree 0.5- 1, 3' • No of stroke per minute 14 or more • Main motor Siemens • Control System: LCD display • Programmable memory Up to 25 programs MIN • One key backup/restore of following parameters and programs <ul style="list-style-type: none"> ○ Mm/inch ○ Auto reference search ○ Power-down memorization ○ Diagnosis function <p>Or Equivalent</p> <p><i>Ranges and values are approximate and close values will be acceptable</i></p> <p>Accessories:</p> <ul style="list-style-type: none"> • Foot switch • Front carrier 	No	02		

			<ul style="list-style-type: none"> • Grease gun • Feeler • Seal Ring • Key for electronic box and main power • Hydraulic oil • One meter front support arm • Rear photocell safety system • Motorized back gauge • Two pushdown cylinders 				
TOTAL							

Firm Name:	_____
Signature:	_____
Name:	_____
Designation:	_____

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.

SPECIMEN FOR "ADVANCE PAYMENT BANK GUARANTEE"

Guarantee No: _____ Date _____ Amount: _____ Valid upto: _____

In Favour of:

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

Subject: **Advance Payment Bank Guarantee**

Contract No: _____ DATED. _____

Dear Sir,

1. We [Name of Guarantor] understand that you have entered into contract with M/S [Name of Firm] (hereinafter called Our Client), for provision of [Name of Stores]. And as per the above mentioned Contract, you are liable to pay to Our Client an amount of [Amount of Guarantee] in advance, which shall be released against a Bank Guarantee.
2. Bank & seller firm shall inform your office regarding termination of the validity of this bank Guarantee one clear month before the actual expiry date of this Bank Guarantee.
3. Now, we hereby irrevocably undertake to immediately make payment on to your orders, merely upon receipt of your first written notice, an amount not exceeding [Amount of Guarantee] that may be claimed by you at your own discretion without it being necessary for you to prove or even assert to the Bank any default whatsoever of Our Client under the Contract.
4. Claims against this Guarantee shall be lodged on us through written request/s on your proper Letter Head. Unless claims are not presented on or before the Validity Date, all rights and benefits under this guarantee shall be forfeited and we shall be released from all claims, demands or liabilities of any kind whatsoever.
5. This Guarantee shall remain in force up to the above mentioned Validity Date which can however, be extended upon request of Our Client.

Yours faithfully,

Signature: _____

Name: _____

Designation: _____

Bank Stamp:

BANK GUARANTEE AGAINST
"SPECIMEN FOR PERFORMANCE/WARRANTY
GUARANTEE"

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 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 CERTIFICATE"

(To be provided on stamp paper)

Contract No: _____ Dated: _____

Validity ____ years from the date of final acceptance of the Stores.

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.

1. 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.

2. The Warranty shall remain valid for a period of ____ years from the date of final acceptance of the Stores.

Signature & Stamp _____

Name & CNIC _____

Designation: _____

Date: _____

**Sellers warranty must be provided by the Seller (firm) on Rs 100 stamp paper along with bank guarantee/CDR/Pay Order without changing a word. BG with additional clauses will be rejected.

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		Yes	No
4	Offering specification of items as per IT		Yes	No
5	Accounting unit/Qty as per IT		Yes	No
6	Delivery Schedule as per IT		Yes	No
7	Country of origin of store _____			
8	Name of OEM:- _____			
9	Original Performa invoice (Mandatory)		Yes	No
10	Certified that there is no Deviation from IT conditions/ there is deviation from IT condition as per fol details		Yes	No
11	Blacklisting certificate on stamp paper. it is certified that our firm is neither default nor black listed by any govt organization directly or indirectly		Yes	No

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

Signature of Firm Auth Signatory