



Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology, Haripur

KHYBER PAKHTUNKHWA

REQUEST FOR PROPOSAL (RFP) FOR “Supply of Electrical Engineering Lab Equipment”

Submission of Bids: Monday the May 16, 2022 @ 12:00 noon

Opening of Bids: Monday the May 16, 2022 @12:30 pm

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Section 1. Letter of Invitation

The Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology (PAF- IAST), Haripur invites sealed bids from interested firms for the “Supply of Electrical Engineering Lab Equipment” under the following Lots.

Lot No. 1: Electric Machines

Lot No. 2: Power Electronics

Lot No. 3: Electric Power Systems

Lot No. 4: Control System and Instrumentation

Lot No. 5: DSP and Signal & Systems

Lot No. 6: Communication

Lot No. 7: RF and Microwave

Lot No. 8: PCB Design

Lot No. 9: Physics

Lot No. 10: Electrical Circuits

Lot No. 11: All in one Computer

Lot No. 12: Lab Furniture

The bidder must be registered and duly recognized in Pakistan and be registered with FBR; possess Manufacturer’s status or Distributor/ Dealer status with authorization from Manufacturer/ Principal specific for this tender, with sufficient financial, technical, and human resources to take up the task assigned and complete the same within prescribed time limit on the finalization of contract with PAF- IAST.

Tender document containing instructions to bidders covering definitions, introduction/background of the Project, scope of work, general terms and conditions, and special terms, procedure for submission of bids, opening of bid, evaluation criteria, and other related information, can be obtained against a written request on company’s letterhead, from Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology, Haripur – Pakistan. Cost of the document is Rs. 2000/- Non-refundable (Stationery charges) for each LOT separately. Tender document can also be downloaded from <http://www.paf-iastr.edu.pk/> free of cost, however, it should also be submitted along with Pay Order/ Demand Draft of Rs. 2000/- (Stationery Charges). No bid will be accepted without Tender Document fee.

Bidder(s) interested in participating in the tender process are advised to submit their Bid Proposal(s), along with the Earnest Money amounting 2% of their Bid Value in the shape of CDR, in accordance with the instructions in this tender document. Bid Proposal(s) must reach PAF-IAST, Haripur on **Monday the May 16, 2022** by 1200 hrs. Any late Bid(s) shall not be accepted and returned unopened. Accepted Bids will be opened on the same day at 1230 hrs, in presence of bidders who chose to attend. In case of sudden holiday on bid opening day, bids will be opened on next working day. The Tender shall be executed in accordance with KPPRA Rule 6 (2)(b) **“Single Stage, Two Envelope Procedure”**.

This advertisement is also available on PAF-IAST and KPPRA websites <https://paf-iaast.edu.pk/tenders/> & <http://www.kppra.gov.pk>.

Rector

Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology (PAF-IAST)

Hairpur – Khyber Pakhtunkhwa

Phone: 0995-931706 E-Mail: procurement@paf-iaast.edu.pk

Section 2. Instruction to Bidders (ITB)

GENERAL TERMS	
1. Introduction	<p>1.1 Bidders shall adhere to all the requirements of this ITB, including any amendments made in writing by PAF-IAST. This ITB will be governed under Clause 6 (2)(b) "Single Stage, two Envelope Procedure" of Khyber Pakhtunkhwa Public Procurement Rules, 2014, as amended from time to time and instructions of the Government of Khyber Pakhtunkhwa received during the completion of the project.</p> <p>1.2 Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of the Bid by PAF-IAST. The Institute is under no obligation to award a contract to any Bidder as a result of this ITB.</p> <p>1.3 PAF-IAST reserves the right to cancel the procurement process at any stage without any liability of any kind for PAF-IAST, upon notice to the bidders or publication of cancellation notice on PAF- IAST website.</p>
2. Fraud & Corruption, Gifts and Hospitality	<p>2.1 PAF-IAST strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of PAF-IAST vendors and requires all bidders/ vendors observe the highest standard of ethics during the procurement process and contract implementation.</p> <p>2.2 Bidders/ vendors shall not offer gifts or hospitality of any kind to PAF-IAST staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or invitations to extravagant lunches or dinners.</p> <p>2.3 In pursuance of this policy, PAF-IAST:</p> <p>(a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question.</p> <p>(b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a PAF-IAST contract; or counseling or canvassing staff or elected representatives; or engaging in collusion with other bidders.</p>

3. Eligibility	<p>3.1 A Bidder should not be suspended, debarred, or otherwise identified as ineligible by any Government/ Semi-government/ or any other international Organization. Bidders are therefore required to disclose to PAF-IAST whether they are subject to any sanction or temporary suspension imposed by these organizations.</p> <p>3.2 It is the Bidder's responsibility to ensure that its employees, sub-contractors, service providers, suppliers and/ or their employees meet the eligibility requirements as established by PAF-IAST.</p>
4. General Terms	<p>4.1 The Bidder should be registered with Sales Tax and Income Tax Department.</p> <p>4.2 The Bidder should have not been blacklisted by any Government/ Semi-Government organization.</p> <p>4.3 There should be no litigation against the bidder/ firm.</p>

PREPARATION OF BIDS

5. General Considerations	<p>5.1 In preparing the Bid, the Bidder is expected to examine the ITB in detail. Material deficiencies in providing the information requested in the ITB may result in rejection of the Bid.</p> <p>5.2 The Bidder will not be permitted to take advantage of any errors or omissions in the ITB. Should such errors or omissions be discovered, the Bidder must notify the Project Director, PAF-IAST accordingly.</p>
6. Cost of Preparation of Bid	6.1 The Bidder shall bear all costs related to the preparation and/ or submission of the Bid, regardless of whether its Bid is selected or not. PAF-IAST shall not be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.
7. Language	7.1 The Bid, as well as any, and all related correspondence exchanged by the Bidder and PAF- IAST, shall be written in the language(s) specified in the BDS.
8. Documents Comprising the Bid	<p>8.1 The Bid shall comprise of the following documents and related forms of which details are provided in the BDS. All pages of the Bid shall be signed, stamped and properly paginated.</p> <ol style="list-style-type: none"> 1. Returnable Forms as referred in Section 6 shall be properly filled in Ink or Typed. Forms filled in using a pencil shall not be considered and substantiate the annulment of the Bid Proposal. 2. Documents Establishing the Eligibility and Qualifications of the Bidder; 3. Bid covering Technical Specifications in detail, and covering Price Schedule; 4. Bid Security, if required by BDS; 5. Any attachments and/ or appendices to the Bid.
9. Documents Establishing the Eligibility and Qualifications	9.1 The Bidder shall furnish documentary evidence of its status as an eligible and qualified supplier, using the Forms provided under Section 6 and providing documents required in those forms. In order to award a contract to a Bidder, its qualifications must be documented to PAF-IAST's satisfaction.
10. Technical Bid Format	10.1 The Bidder is required to submit a Bid using the Standard Forms and templates

<p>and Content</p>	<p>provided in Section 6 of the ITB.</p> <p>10.2 Samples of items, when required as per Section 5, shall be provided within the time specified and unless otherwise specified by the Purchaser, at no expense to the Institute. If not destroyed by testing, samples will be returned at Bidder's request and expense, unless otherwise specified.</p> <p>10.3 When applicable and required in Section 5, the Bidder shall describe the necessary training program available for the maintenance and operation of the equipment offered as well as the cost to the Institute. Unless otherwise specified, such training as well as training materials shall be provided in the language of the Bid as specified in the BDS.</p> <p>10.4 When applicable and required in Section 5, the Bidder shall certify the availability of spare parts for a period of at least five (5) years from date of delivery, or as otherwise specified in this ITB.</p>
<p>11. Price Schedule</p>	<p>11.1 The Price Schedule shall be prepared using the Forms provided in Section 6 of the ITB and taking into consideration the requirements in the ITB.</p> <p>11.2 Any requirement described in this ITB but not priced in the Price Schedule, shall be assumed to have been included in the prices of other activities or items, as well as in the final total price.</p>
<p>12. Bid Security</p>	<p>12.1 A Bid Security shall be provided in the amount and form indicated in the BDS. The Bid Security shall be valid for the duration as referred in BDS.</p> <p>12.2 The Bid Security shall be included along with the Bid. If Bid Security not found in the Bid, the Bid shall be rejected.</p> <p>12.3 If the Bid Security amount or its validity period is found to be less than what is required, PAF-IAST shall reject the Bid.</p>
	<p>12.4 In the event an electronic submission is allowed in the BDS, Bidders shall include a copy of the Bid Security in their bid and the original of the Bid Security must be sent via courier or hand delivery as per the instructions in BDS.</p> <p>12.5 The Bid Security will be forfeited by PAF-IAST, and the Bid rejected, in the event of any, or combination, of the following conditions:</p> <ol style="list-style-type: none"> 1. If the Bidder withdraws its offer during the period of the Bid Validity specified in the BDS, or; 2. In the event the successful Bidder fails: <ol style="list-style-type: none"> 1. to sign the Contract after PAF-IAST has issued an award; or 2. to furnish the Performance Security, insurances, or other documents that PAF-IAST may require as a condition precedent to the effectivity of the contract that may be awarded to the Bidder.
<p>13. Currencies</p>	<p>13.1 All prices shall be quoted in the currency indicated in the BDS. Where prices are quoted in different currencies, for the purposes of comparison:</p> <ol style="list-style-type: none"> 1. PAF-IAST will convert the currency quoted into the currency indicated in BDS, in accordance with the prevailing Inter Bank rate of exchange on the last day of submission of Bids; and 2. In the event that PAF-IAST selects a Bid for award that is quoted in a currency different from the preferred currency in the BDS, PAF-IAST shall

	<p>reserve the right to award the contract in the currency of PAF-IAST's preference, using the conversion method specified above.</p>
<p>14. Joint Venture, Consortium or Association</p>	<p>14.1 If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, which shall be evidenced by an intent letter or an Agreement among the legal entities duly notarized, and submitted with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between PAF-IAST and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture.</p> <p>14.2 After the Deadline for Submission of Bid, the lead entity identified to represent the JV, Consortium or Association Or any change in the constitution of the JV, Consortium or Association shall not be altered without the prior written consent of PAF-IAST/ Procurement Committee.</p> <p>14.3 The lead entity and the member entities of the JV, Consortium or Association shall abide by the provisions of Clause 15 herein in respect of submitting only one Bid.</p> <p>14.4 The description of the organization of the JV, Consortium or Association must clearly define the expected role of each of the entities in the joint venture in delivering the requirements of the ITB, both in the Bid and the JV, Consortium or Association Agreement or Intent Letter. All entities that comprise the JV, Consortium or Association shall be cumulatively subject to the eligibility and technical qualification assessment by PAF-IAST as defined in Section 4: Evaluation Criteria.</p> <p>14.5 A JV, Consortium or Association in presenting its track record and experience should clearly differentiate between:</p> <ol style="list-style-type: none"> 1. Those that were undertaken together by the JV, Consortium or Association; and 2. Those that were undertaken by the individual entities of the JV, Consortium or Association. <p>14.6 Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the JV, Consortium or Association or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials.</p>

<p>15. Only One Bid</p>	<p>15.1 The Bidder (including the individual members of any Joint Venture) shall submit only one Bid, either in its own name or as part of a Joint Venture.</p> <p>15.2 Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following:</p> <ol style="list-style-type: none"> 1. they have at least one controlling partner, director or shareholder in common; or 2. any one of them receive or have received any direct or indirect subsidy from the other/s; or 3. they have the same legal representative for purposes of this ITB; or 4. they are subcontractors to each other's Bid, or a subcontractor to one Bid also submits another Bid under its name as lead Bidder; or some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this ITB process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.
<p>16. Bid Validity Period</p>	<p>16.1 Bids shall remain valid for the period specified in the BDS, commencing on the Deadline for Submission of Bids. A Bid valid for a shorter period may be rejected by PAF-IAST and rendered non-responsive.</p> <p>16.2 During the Bid validity period, the Bidder shall maintain its original Bid without any change, including the availability of the Key Personnel.</p>
<p>17. Extension of Bid Validity Period</p>	<p>17.1 In exceptional circumstances, prior to the expiration of the Bid validity period, PAF-IAST may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing and shall be considered integral to the Bid.</p> <p>17.2 If the Bidder agrees to extend the validity of its Bid, it shall be done without any change to the original Bid.</p> <p>17.3 The Bidder has the right to refuse to extend the validity of its Bid, in which case, the Bid shall not be further evaluated.</p>
<p>18. Clarification on ITB (from the Bidders)</p>	<p>18.1 Bidders may request clarifications on any of the ITB documents no later than the date indicated in the BDS. Any request for clarification must be sent in writing in the manner indicated in the BDS. If inquiries are sent other than specified channel, even if they are sent to a PAF-IAST staff member, PAF-IAST shall have no obligation to respond or confirm that the query was officially received.</p> <p>18.2 PAF-IAST will provide the responses to clarifications through the method specified in the BDS.</p> <p>18.3 PAF-IAST shall endeavor to provide responses to clarifications in an expeditious manner, but any delay in such response shall not cause an obligation on the part of PAF-IAST to extend the submission date of the Bids, unless PAF-IAST deems that such an extension is justified and necessary.</p>

19. Amendment in ITB	<p>19.1 At any time prior to the deadline of Bid submission, PAF-IAST may for any reason, such as in response to a clarification requested by a Bidder, modify the ITB in the form of an amendment to the ITB. Amendments will be made available to all prospective bidders.</p> <p>19.2 If the amendment is substantial, PAF-IAST may extend the Deadline for submission of Bid to give the Bidders reasonable time to incorporate the amendment into their Bids.</p>
20. Alternative Bids	<p>20.1 Unless otherwise specified in the BDS, alternative Bids shall not be considered. If submission of alternative Bid is allowed by BDS, a Bidder may submit an alternative Bid, but only if it also submits a Bid conforming to the ITB requirements. Where the conditions for its acceptance are met, or justifications are clearly established, PAF-IAST reserves the right to award a contract based on an alternative Bid.</p> <p>20.2 If multiple/ alternative bids are being submitted, they must be clearly marked as "Main Bid" and "Alternative Bid"</p>
21. Pre-Bid Conference	<p>21.1 When appropriate, a pre-bid conference may be conducted at the date, time and location specified in the BDS. All Bidders are encouraged to attend. Nonattendance, however, shall not result in disqualification of an interested Bidder. Minutes of the Bidder's conference will be disseminated on the procurement website and/ or shared by email as specified in the BDS. No verbal statement made during the conference shall modify the terms and conditions of the ITB, unless specifically incorporated in the Minutes of the Bidder's Conference or issued/ posted as an amendment to ITB.</p>

SUBMISSION AND OPENING OF BIDS

22. Bid Proposal Submission	<p>22.1 22.1 The Bidder shall submit a duly signed and numbered all pages of the complete Bid in an Envelope sealed and marked as per ITB 22.6, and in accordance with KPPRA Rule 6 (2)(b).</p> <p>22.2 The Outer Envelope should contain Two (02) separate sealed envelopes, one of which comprising the Forms (A – F) and supporting documents in accordance with requirements in the BDS, shall be marked as "Technical Proposal". Whereas, the other envelope containing the Form G: Price Schedule Form shall be marked as "Financial Proposal".</p> <p>22.3 The Bid Security as referred in BDS must be placed in the "Financial Proposal" but in a duly sealed envelope and marked as "Bid Security". However, an Affidavit stating that the Bid Security (without indicating the amount) has been placed in the Financial Proposal, should be enclosed in "Technical Proposal". Bid security envelop will be opened with financial proposal of Technically qualified bidders.</p> <p>22.4 Bid can be delivered either personally, or by courier as specified in the BDS.</p> <p>22.5 The Bid shall be signed by the Bidder or person(s) duly authorized to commit the Bidder. The authorization shall be communicated through a document evidencing such authorization issued by the legal representative of the bidding entity, or a Power of Attorney, accompanying the Bid. There should not be errors and/ or over-writings. Corrections (if any) should be made clearly and initialed with dates.</p> <p>22.6 Bidders must be aware that the mere act of submission of a Bid, in and of itself, implies that the Bidder fully accepts the General Contract Terms and</p>
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	<p>Conditions.</p> <p>22.7 Hard copy submission by courier or hand delivery allowed or specified in the BDS shall be governed as follows:</p> <p>a) The signed Bid shall be marked "Original", and its copies marked "Copy" as appropriate. The number of copies is indicated in the BDS. All copies shall be made from the signed original only. If there are discrepancies between the original and the copies, the original shall prevail.</p> <p>(b) The Bid Proposals must be sealed and submitted in an envelope, which shall:</p> <ol style="list-style-type: none"> 1. Bear the name of the Bidder; 2. Be addressed to PAF - IAST as specified in the BDS; and 3. Bear a warning not to open before the time and date for Bid opening as specified in the BDS. <p>If the envelope with the Bid is not sealed and marked as required, PAF-IAST shall assume no responsibility for the misplacement, loss, or premature opening of the Bid.</p>
<p>23. Deadline for Submission of Bids and Late Bids</p>	<p>23.1 Complete Bids must be received by PAF-IAST in the manner, and no later than the date and time, specified in the BDS. PAF-IAST shall only recognize the actual date and time that the bid was received by PAF-IAST.</p> <p>23.2 PAF-IAST shall not consider any Bid that is received after the deadline for the submission of Bids.</p>
<p>24. Withdrawal, Substitution, and Modification of Bids</p>	<p>24.1 A Bidder may withdraw, substitute or modify its Bid after it has been submitted at any time prior to the deadline for submission.</p> <p>24.2 A bidder may withdraw, substitute or modify its Bid by sending a written notice to PAF- IAST, duly signed by an authorized representative, including a Power of Attorney. The corresponding substitution or modification of the Bid, must accompany the respective written notice. All notices must be submitted in the same manner as specified for submission of Bids, by clearly marking them as "WITHDRAWAL" "SUBSTITUTION," or "MODIFICATION"</p> <p>24.3 Bids requested to be withdrawn shall be returned unopened to the Bidders, except if the bid is withdrawn after the bid has been opened.</p>
<p>25. Bid Opening</p>	<p>25.1 The Procurement Committee of PAF- IAST will open the Bid in the presence of Bidders' representative(s) who choose to attend.</p> <p>25.2 The Bidders' names, modifications, withdrawals, the condition of the envelope labels/ seals, the number of folders/ files and all other such other details as PAF-IAST may consider appropriate, will be announced at the opening. No Bid shall be rejected at the opening stage, except for late submissions, in which case, the Bid shall be returned unopened to the Bidders.</p> <p>25.3 In case of public holiday on bid opening day, bids will be opened on next working day.</p>

26. Confidentiality	<p>26.1 Information relating to the examination, evaluation, and comparison of Bids, and the recommendation of contract award, shall not be disclosed to Bidders, even after publication of the contract award.</p> <p>26.2 Any effort by a Bidder to influence PAF-IAST in the examination, evaluation and comparison of the Bids or contract award decisions may, at PAF-IAST's decision, result in the rejection of its Bid and may subsequently be subject to consequences.</p>
27. Preliminary Examination	27.1 PAF-IAST shall examine the Bids to determine whether they are complete with respect to minimum documentary requirements, whether the documents have been properly signed, and whether the Bids are generally in order, among other indicators that may be used at this stage. PAF-IAST reserves the right to reject any Bid at this stage.
28. Evaluation of Eligibility and Technical Qualification	<p>28.1 Eligibility and Technical Qualification of the Bidder will be evaluated against the Minimum Eligibility/ Qualification requirements specified in the Section 4: Evaluation Criteria.</p> <p>28.2 In general terms, Bidders that meet the following criteria may be considered qualified:</p> <ol style="list-style-type: none"> 1. They are not included in the list of blacklisted or barred companies published on KPPRA website, any federal or provincial government department; 2. They have a good financial standing and have access to adequate financial resources to perform the contract and all existing commercial commitments, 3. They have the necessary experience, technical expertise, production capacity, quality certifications, quality assurance procedures and other resources applicable to the supply of goods and/ or services required; <ol style="list-style-type: none"> 1. They are able to comply fully with the General Terms and Conditions of Contract; 2. They do not have a consistent history of court/ arbitral award decisions against the Bidder; and 3. They have a record of timely and satisfactory performance with their clients.
29. Evaluation of Bid Proposals	29.1 The evaluation team shall review and evaluate the Bids on the basis of their responsiveness to the Schedule of Requirements and Technical Specifications and other documentation provided, applying the procedure indicated in the BDS and other ITB documents. When necessary, and if stated in the BDS, PAF-IAST may invite technically responsive bidders for a presentation related to their Bids. The conditions for the presentation shall be provided in the bid document where required.
30. Due diligence	<p>30.1 PAF- IAST reserves the right to undertake a due diligence exercise, aimed at determining to its satisfaction, the validity of the information provided by the Bidder. Such exercise shall be fully documented and may include, but need not be limited to, all or any combination of the following:</p> <ol style="list-style-type: none"> 1. Verification of accuracy, correctness and authenticity of information provided by the Bidder; 2. Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team; 3. Inquiry and reference checking with Government entities with jurisdiction on the Bidder, or with previous clients, or any other entity that may have done business with the Bidder;

	<ol style="list-style-type: none"> 4. Inquiry and reference checking with previous clients on the performance on on-going or completed contracts, including physical inspections of previous works, as deemed necessary; 1. Physical inspection of the Bidder's offices, branches or other places where business transpires, with or without notice to the Bidder; 2. Other means that PAF-IAST may deem appropriate, at any stage within the selection process, prior to declaring the Bidder as Qualified.
31. Clarification of Bids	<p>31.1 To assist in the examination, evaluation and comparison of Bids, PAF- IAST may, at its discretion, request any Bidder for a clarification of its Bid.</p> <p>31.2 PAF- IAST's request for clarification and the response shall be in writing and no change in the prices or substance of the Bid shall be sought, offered, or permitted, except to provide clarification, and confirm the correction of any arithmetic errors discovered by PAF-IAST in the evaluation of the Bids in accordance with the ITB.</p> <p>31.3 Any unsolicited clarification submitted by a Bidder in respect to its Bid, which is not a response to a request by PAF-IAST, may not be considered during the review and evaluation of the Bids.</p>
32. Responsiveness of Bid	<p>32.1 PAF-IAST's determination of a Bid's responsiveness will be based on the contents of the bid itself. A substantially responsive Bid is one that conforms to all the terms, conditions, specifications and other requirements of the ITB without material deviation, reservation, or omission.</p> <p>32.2 If a bid is not substantially responsive, it may be rejected by PAF-IAST and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.</p>
33. Right to Accept, Reject, Any or All Bids	<p>33.1 PAF-IAST reserves the right to accept or reject any proposal in response to the ITB, to render any or all of the proposals as non-responsive, and to reject all Proposals in response to the ITB at any time prior to award of contract, while assigning the reason(s) thereof.</p> <p>33.2 PAF- IAST shall not be obliged to award the contract to the lowest priced offer.</p>
34. Nonconformities, Reparable Errors and Omissions	<p>34.1 Provided that a Bid is substantially responsive, PAF-IAST may waive any nonconformities or omissions in the Bid that, in the opinion of PAF-IAST, do not constitute a material deviation.</p> <p>34.2 PAF-IAST may request the Bidder to submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price. Failure of the Bidder to comply with the request may result in the rejection of its Bid.</p> <p>34.3 For the Price Schedule that are submitted, PAF-IAST shall check and correct arithmetical errors as follows:</p> <ol style="list-style-type: none"> 1. if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of PAF-IAST there is an obvious misplacement of the decimal point in the unit price; in which case, the line item total as quoted shall govern and the unit price shall be corrected;

	<ol style="list-style-type: none"> 2. if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and 3. if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail. <p>34.4 If the Bidder does not accept the correction of errors made by PAF- IAST, its Bid shall be rejected.</p>
35. Bidder Grievance	35.1 PAF- IAST’s grievance readdress procedure provides an opportunity for appeal to those persons or firms not awarded a contract through a competitive procurement process. In the event that a Bidder believes that it was not treated fairly, the Bidder may lodge a complaint to the PAF-IAST’s Grievance Readdress Committee.
AWARD OF CONTRACT	
36. Evaluation	<p>36.1 PAF-IAST will conduct the evaluation solely on the basis of response to this tender received from the firms.</p> <p>36.2 Evaluation shall be undertaken in the following steps:</p> <ol style="list-style-type: none"> 1. Preliminary Examination including Technical Specifications and other compliances 2. Arithmetical check and ranking of bidders who passed preliminary examination by price. 3. Evaluation of prices <p>36.3 Price comparison shall be based on the landed price, including transportation, insurance and the total cost of ownership (including spare parts, consumption, installation, commissioning, training, special packaging, etc., where applicable)</p>
37. Integrity Pact	37.1 Bidders will also be required to submit a signed Integrity Pact on a stamp paper of appropriate value as part of their response. The text of Integrity Pact is available at Annex – I.
38. Award Criteria	<p>38.1 Prior to expiration of the period of Proposal validity, PAF-IAST shall award the contract to the Bidder that is found to be responsive to the requirements of the Technical Specifications and has offered the lowest price.</p> <p>38.2 PAF-IAST shall not be obliged to award the contract to the lowest priced offer, if the response is found deficient to the Technical Specifications and other compliances.</p> <p>38.3 In case of tie in Financial Bid Value, the Contract will be awarded to the bidder having more closest match to the Technical Specifications.</p>
39. Contract Signing	<p>39.1 After the approval of any Work Award, a Contract Agreement on the stamp paper of appropriate value, shall be executed by PAF-IAST with Selected Bidder (i.e. Contractor) within 15 days from the date of issuance of Lol (Letter of Intent)/ Work Order.</p> <p>39.2 Failure to signing of Contract Agreement by the selected Bidder Firm with PAF- IAST within the stipulated time may constitute sufficient grounds for the annulment of the award, and forfeiture of the Bid Security, if any, and on which event, PAF- IAST may award the Contract to the Second highest rated or call</p>

	for new Proposals.
40. Right to Vary quantity at the Time of Award	40.1 At the time of award of Contract, PAF-IAST reserves the right to vary the quantity of goods and/ or services, without any change in the unit price or other terms and conditions.
41. Sample draft Contract	41.1 A sample draft Contract to be signed, containing applicable General Terms and Conditions can be found at Annex – II.
42. Performance Security	42.1 A performance security, if required in the BDS, shall be provided in the amount specified in BDS, well prior to the Contract signing by both parties. Where a performance security is required, the receipt of the performance security by PAF-IAST shall be a condition for rendering the contract effective.
43. Bank Guarantee for Advanced Payment	43.1 No Payment will be released in advance.
44. Liquidated Damages	<p>44.1 PAF-IAST shall apply Liquidated Damages for the damages and/ or risks caused to PAF-IAST resulting from the Contractor's delays or breach of its obligations as per Contract.</p> <ol style="list-style-type: none"> 1. In case of delay, the Procurement Committee, PAF-IAST reserves the right to impose a penalty not exceeding 10% of the total amount of the Contract Value at the rate as referred in the Sample Contract at Annexure – II. 2. If the Contractor fails to complete work as per PAF-IAST requirement, the Rector, PAF-IAST reserves the right to reject it altogether or impose a penalty not exceeding 50% of the total amount of the Contract. 3. If the Contractor fails to provide supplies/ services as per PAF-IAST requirements, PAF-IAST may forfeit his earnest money as well as Performance Security, and the work will be done at the risk and cost of Contractor. 4. In case of any dispute, matter will be referred to Rector, PAF-IAST whose decision will be binding on both the parties.
45. Force Majeure	45.1 "Force Majeure" means an event which is beyond the reasonable control of a party and which makes a party's performance of its obligations under the Purchase Order/ Work Order/ Contract impossible or so impractical as to be considered impossible under the circumstances, and includes, but is not limited to, War, Riots, Storm, Flood or other industrial actions (except where such strikes, lockouts or other industrial issues are within the power of the party invoking Force Majeure), confiscation or any other action by Government agencies. In all disputes between the parties as to matters arising pursuant to this Purchase Order/ Work Order/ Contract, the dispute will be referred to Project Director, PAF-IAST whose decision will be final.
46. Delivery of Goods	46.1 Contractor will be required to deliver the goods as per the Delivery Schedule referred in BDS without claiming any additional cost to the PAF-IAST at the designated site(s) and in quantities as referred in the Contract.
47. Payment Provisions	47.1 Payment will be made only upon PAF- IAST's acceptance of the goods and/ or services performed. The terms of payment shall be within thirty (30) days, after receipt of invoice, and certification of acceptance of goods and/ or services issued by the proper authority in PAF: IAST. Payment will be affected by bank

transfer in the currency of the contract.

47.2 The Contractor shall provide all necessary supporting documents along with GST invoice, delivery challan and any other relevant documents as required by the PAF- IAST.

Section 3. Bid Data Sheet

The following data for the goods and/ or services to be procured shall complement, supplement, or amend the provisions in the Invitation to Bid. In the case of a conflict between the Instructions to Bidders, the Bid Data Sheet, and other annexes or references attached to the Bid Data Sheet, the provisions in the Bid Data Sheet shall prevail.

BDS No.	Ref. to Section.2	Data	Specific Instructions / Requirements
1.		Background of the Project	<p>Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology (PAF: IAST) is novel in its content and holistic in approach. The project concept is based on the slogan of “Skilling Pakistan” to create a high-quality technical education infrastructure. This unique educational institution in Pakistan will closely collaborate with several institutions in Austria and China and award multiple foreign degrees. This is a historic and visionary initiative as it is probably the first time that an institution will be established in Pakistan with many foreign universities giving degrees to students who study in it.</p>
2.		Objective	<p>The main objective of this Tender is to equip the PAF-IAST with necessary and advanced level of laboratory facilities, providing enabling environment to the students and faculty to perform their academic and research work in a conducive and productive environment and deliver beyond the expectations.</p>
3.		Scope of Work	<p>Supply of Research Lab Equipment</p> <p>The required items in various Lots as referred in Section – 5 have been sought by PAF-IAST from a reputed Firms/ Companies. The supplier is expected to supply high quality products meeting the specification as stipulated in this ITB, which conforms to the international quality standards. The time specified for delivery, Installation and Commissioning in the tender form shall be deemed to be the essence of the contract and the Successful Bidder shall arrange within the specified period.</p> <p>Post-Delivery Warranty and Support Services</p> <p>It is required that Manufacturer’s Warranty and Post-delivery Bidder’s Support Services for at least One (01) year from the date of commissioning at PAF-IAST be provided by the Supplier within the quoted cost of items.</p> <p>Moreover, additional Warranty and Support Services for next four (04) years should be quoted separately by the Bidder on annual payment basis. However, it will be at sole discretion of PAF-IAST to avail additional Warranty and Support Services in subsequent year(s) or otherwise.</p>
4.	7	Language of the Bid	English

5.	22, 23, 27	Submitting Bids for Parts or subparts of the Schedule of Requirements (partial bids)	The Purchase Committee shall consider the Bids Lot-wise (i.e. package against each of the Lots) as referred in Section – 5. Any item not quoted in the respective Lot shall have reasonable grounds to reject the Bid for that Lot.
6.	20	Alternative Bids	Not Allowed
7.	21	Pre-Bid conference	N/A
8.	16	Bid Validity Period	180 days
9.	13	Bid Security/ Earnest Money (Refundable)	<p>Required in the amount of: 2% of the Bid Value quoted in PKR for FOR of each Lot including extended warranty (separately) against which the Bidder is participating. In case of options, earnest money shall be based on the maximum quoted price of the same items in the Lot.</p> <p><u>Acceptable Forms of Bid Security:</u> Denominated in Pak Rupees duly issued by a Pakistani Bank or branch of a Foreign Bank, in the form of CDR in favor of the Rector, PAF-IAST</p>
10.	42	Liquidated Damages	<p>Will be imposed as follows:</p> <p>Percentage of contract price per day of delay: as referred in Draft Contract Sample in Annexure – II.</p>
11.	40	Performance Security	Within 10 days of issuance of Lol/ Purchase Order and well prior to the signing of Contract, as 10% of the Contract value for the duration of Warranty period referred in RFP.
12.	12	Currency of Bid	<p>Pakistani Rupees (PKR) for FOR</p> <p>US Dollars for CIF</p>
13.	31	Deadline for submitting requests for clarifications/ questions	5 days before the submission deadline
14.	31	Contact Details for submitting clarifications/ questions	<p>Focal Person (technical) in PAF: IAST:</p> <p>Dr. Muhammad Aamir</p> <p>Muhammad.aamir@fecid.paf-iast.edu.pk</p> <p>0995-932231</p>

			For Tender related Queries: Dr. M. Zubair Khan zubair.khan@fcm3.paf-iast.edu.pk 0995-931706
15.	18, 19, and 21	Manner of Disseminating Supplemental Information to the ITB and responses/ clarifications to queries	Direct communication to prospective Bidders by email: Muhammad.aamir@fecid.paf-iast.edu.pk
16.	23	Deadline for Submission	Monday the May 16, 2022, before 12:00 noon
17.	22	Number of Set(s) of Bid	Technical Proposal(s) 1. One (01) Original 2. One (01) Copy 3. Soft copy of Technical Proposal in a USB Flash Drive Financial Proposal(s) 4. One (01) Original <i>Note: Bidders are required to prepare and submit the Proposal(s) against the Lot(s) separately in separate envelopes, in which they intend to participate.</i>
5.	22	Allowable Manner of Submitting Bids	<input checked="" type="checkbox"/> Courier/ Hand Delivery
6.	22	Bid Submission Address	<input checked="" type="checkbox"/> <u>By Courier / Hand Delivery:</u> Convener Procurement Committee, PAF- IAST, Mang, Haripur
7.	22	Electronic submission (email) requirements	Not Allowed
8.	25	Date, time and venue for the opening of bid	Date and Time: Monday the May 16, 2022 at 12:30pm Venue: Conference Room, PAF-IAST, Mang, Haripur
9.	27, 36	Evaluation Method	Eligible and qualified bids meeting the PAF- IAST requirements and technically responsive as stipulated in this ITB

10.		Evaluation Method for the Award of Contract	Lowest priced technically responsive.								
11.		Expected date for commencement of Contract	July 2022								
12.		Maximum expected duration of Contract	60 months								
13.	35	PAF: IAST will award the contract to:	One Bidder Only against each Lot								
14.	39	Type and Contract Terms and Conditions that will apply	PAF-IAST General Terms and Conditions for Contracts for Goods and/ or Services as per Sample at Annex – II.								
15.	46	Delivery, Installation and Testing/ Training	<table> <thead> <tr> <th></th> <th>Delivery</th> <th>Installation</th> <th>Testing/ Training</th> </tr> </thead> <tbody> <tr> <td>LOT # 1,2,3, 4, 5, 6, 7, 8, 9, 10, 11, & 12</td> <td>10-12 weeks</td> <td>2 weeks</td> <td>2 weeks</td> </tr> </tbody> </table>		Delivery	Installation	Testing/ Training	LOT # 1,2,3, 4, 5, 6, 7, 8, 9, 10, 11, & 12	10-12 weeks	2 weeks	2 weeks
	Delivery	Installation	Testing/ Training								
LOT # 1,2,3, 4, 5, 6, 7, 8, 9, 10, 11, & 12	10-12 weeks	2 weeks	2 weeks								

Section 4. Evaluation Criteria

Preliminary Examination Criteria

Bids will be examined to determine whether they are complete and submitted in accordance with ITB requirements as per below criteria on a Yes/ No basis:

1. Appropriate signatures
2. Power of Attorney
3. Minimum Bid documents provided
4. Bid Validity
5. Bid Security submitted as per ITB requirements with compliant validity period

Minimum Eligibility Criteria

Eligibility will be evaluated on a Pass/ Fail basis. If the Bid is submitted as a Joint Venture, there should be no more than two (02) companies in the Joint Venture and each company should meet the minimum criteria, unless otherwise specified.

ELIGIBILITY			
S. #	Subject	Criteria	Reference Returnable Form(s)
1.	Bidder's Status	Participating as <input type="checkbox"/> Individual Company <input type="checkbox"/> JV/ Consortium	Form B: Joint Venture/ Consortium/ Association Information Form
2.	Legal Status	Bidder is a legally registered entity in Pakistan. Bidder is/ are also registered with FBR for Income Tax and Sales Tax	Form C: Bidder Information Form
3.	Location of Offices	Bidder (Lead Bidder) has either declared office(s) in Islamabad/ Rawalpindi/ Peshawar or in Haripur. Alternately, if the Contract is awarded, the Bidder shall establish office in either of these cities.	Form C: Bidder Information Form
4.	Principal's Authorization	Bidder or at least one member of JV/ Consortium/ Association must be Authorized Partner/ Reseller/ Dealer for the supply and services of quoted goods/ services.	Form C: Bidder Information Form
5.	Company in Operation	Bidder (Lead Bidder) is in operation for at least Five (05) years.	Form C: Bidder Information Form
6.	Financial Strength	For Lots 1-10: Average annual turnover over last 3 years no less than Rs. 150 million For Lots 11 & 12: Average annual turnover over last 3 years no less than Rs. 45 million <i>(For JV/ Consortium/ Association, all Parties cumulatively should meet requirement).</i>	Form C: Bidder Information Form
7.	Relevant Experience	Minimum No. of Projects of similar nature, value, and complexity in last two years Two (02) projects <i>(For JV/Consortium/Association, all Parties cumulatively should meet</i>	Form C: Bidder Information Form

		<i>requirement).</i>	
8.	Eligibility	Bidder(s) is not suspended, nor debarred, nor otherwise identified as ineligible by any Government/ Semi-government/ Autonomous organization in Pakistan, in accordance with ITB clause 3. Non-Blacklisting certificate will be required.	Form A: Bid Submission Form
9.	Bankruptcy	Bidder(s) has not declared bankruptcy, is not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against the vendor that could impair its operations in the foreseeable future.	Form A: Bid Submission Form

QUALIFICATION

S. #	Attribute	Description	Max. Score	Criteria	Returnable Form(s)
Section – I: General Corporate Profile			25		
10.	Bidder's Footprints	Number of offices/ services centers across the country	5	4+ offices fully operational for last five (05) year	Form C: Bidder Information Form
			3	3 – 4 offices fully operational for last five (05) year	
			1	< 3 offices fully operational for last five (05) year	
11.	Bidder's Human Resource Strength	Number of full-time employees (documentary proof required)	8	50+ employees with at least 20% Technical staff with at least 10% having technical certification	Form C: Bidder Information Form
			6	36 – 50 employees with at least 20% Technical staff at least 10% having technical certification	
			4	21 – 35 employees with at least 20% Technical staff at least 10% having technical certification	
			2	10 – 20 employees with at least 20% Technical staff at least 10% having technical certification	
12.	Financial Standing	Annual Turnover averaged over last 3 years	7	2+ x Financial Strength	Form D: Qualification Form
			4	2 x Financial Strength	
			2	1.5 x Financial Strength	
13.	Annual Tax Paid	Annual Tax Paid averaged over last 3 years	5	Rs. 5 million or more	Form D: Qualification Form
			3	Rs. 2 – 5 million	
			2	Rs. 1 – 2 million	
Section – II: Business Profile			30		
14.	Relevant Experience	Project(s) of similar nature, value and complexity completed. Min. No. of Projects=5	7	Min. No. of Projects + 5	Form D: Qualification Form
			5	Min. No. of Projects + 3	
			3	Min. No. of Projects + 2	
15.	Public Sector	Project(s) delivered to	9	5 Projects worth 20 million each	Form D:

	Experience	government organizations	7	3 Projects worth 20 million each	Qualification Form
			5	2 Projects worth 20 million each	
16.	Education Sector Experience	Project(s) completed at education institutions.	9	2+ Projects	Form D: Qualification Form
			7	2 Projects	
			5	1 Project	
17.	Experience in Haripur/ Abbottabad	Project(s) completed in Haripur/ Abbottabad	5	Project worth 30 million in Haripur/ Abbottabad	Form D: Qualification Form
			3	Project worth 25 million in Haripur/ Abbottabad	
Section – III: Manufacturer’s/ Product’s Strengths			10		
18.	Manufacturer’s Global Presence	Countries having supplied the same Quoted items	5	No. of countries identified by Bid in consideration/ Max. No. of countries identified in all Bids * 10	Form E: Project Proposal Form
19.	Manufacturer’s Products Portfolio	Various Products produced by the manufacturer beyond quoted items	5	No. of relevant Products mentioned by Bid in consideration/ Max. No. of Products referred in all Bids * 10	Form E: Project Proposal Form
Section – IV: Registration & Certifications			10		
20.	ISO 27001 Certified	Bidder or the Lead Bidder in case of JV should be Certified	5	Copy of Valid Certificate	Form E: Project Proposal Form
21.	Certification specific to quoted Products/ Solution	Bidder or any of the JV Partners should possess them	5	Copy of Valid Certificate	Form E: Project Proposal Form
Section – V: Presentation on Project Proposal			25		
22.	Project Management Approach	Overall approach towards planning and implementing the project.	8	To be assigned by the Technical Committee	Form E: Project Proposal Form
23.	Post-Commissioning Services	Overall approach towards after-sale support and services.	7	To be assigned by the Technical Committee	Form E: Project Proposal Form
24.	Distinguishing Features	Distinguishing features of the quoted Product and/ or overall project proposed.	10	To be assigned by the Technical Committee	Form E: Project Proposal Form
Grand Total			100		
Technical Evaluation		Bids shall be evaluated on both Eligibility and Technical Qualification Criteria. Bidders meeting the Eligibility Criteria and able to secure 70 percent in Technical qualification shall be declared as Technically Qualified Bidders for the next step, i.e. Opening of Financial Bid.			

Financial Evaluation

Detailed analysis of the price schedule based on requirements listed in Section 5 and quoted for by the bidders in Form F.

Price comparison shall be based on the landed price, including transportation, insurance and the total cost of ownership (including spare parts, consumption, installation, commissioning, training, special packaging, etc., where applicable)

Comparison with budget/ internal estimates. Tender will be awarded on **least-cost basis**.

Lot No. 1 (Electric Machines)

Sr. No.		Specifications	Qty
1	DC-Machine	Generator: Greater than 1 kW, 1400 rpm or high, shunt motor: 1.0 kW, 1400rpm, series motor: 1.0 kW, 1150 rpm, rotor: 220 V, 5~8 A, excitation: 220 V, 0.55 A.	6
2	Induction Motor Slip-Ring	Power: Greater than 1 kW, speed: 1400 rpm or High, 50 Hz, star connection: 380-415 V, 3~ 5 A, delta connection: 220-240 V, 3~6 A, secondary: 260 V, 3.0 A.	6
3	Synchronous Machine,	Synch. generator: Greater than 1 kVA x 0.8, synch. motor: 1.0 kW, 1400 rpm or high, star conn.: 220-240 V, 3.5 A, delta conn.: 127-140 V, 6.1 A, excitation DC: 220 V, 1.4 A.	6
4	Digital torque, speed, and shaft power meter	A contactless torque sensor together with data acquisition and a display unit. Nominal torque: +/-17.50 Nm. Maximum mechanical torque: 25 Nm. Nominal shaft power: +/-5.50 kW. Nominal speed: 0 to 3000 rpm. Data acquisition protocol: Modbus RTU 8N2. Baud Rate: 9600 kB/19200 kB.	6
5	Thermistor relay	for induction motor, thermistor protected, control unit against overheating of motor, cut off temperature at 60°C.	1
6	Flywheel	Moment of inertia J = 0.406 kgm ² .	6
7	Universal motor	Power:1 or greater than 1 kW, DC at 2600 rpm, 0.4 kW AC. Speed: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz. Voltage: 220-240 V AC / DC. Current: 8 A AC, 7 A DC.	1
8	Induction motor capacitor start	power: 0.75 kW, speed: 1425 rpm, voltage: 220-240 V, 1-phase, current: 6.8 A, capacitors: 310 uF.	1
9	Induction Motor	thermistor protected, power:1 kW, speed: 1400 rpm, voltage: 380-415/220-240 V, 3 phase, current: 3.0 / 5.2 A.	1
10	Starter	Starter AC and DC motors	6
11	Power Supply	Voltage, 380-400 V, 50 Hz, 3-ph. Output voltage: DC fixed: 220 V, 5 A, DC variable: 0-220 V, 16 A, AC fixed: 230/133 V, 10 A, 3-ph, AC variable: 3 x 0-230 V, 10 A, 3-ph. Standard: fixed AC: 230 V, 10 A.	6
12	Star-Delta Starter		6
13	Shunt regulator	Power supply: 230V AC. Potentiometer-connected: 440 ohms. Supply voltage: 220 V DC. Maximum current: 2 A.	12
14	Load resistor	(3.3 kW), contains three ganged resistors with continuous	6

		spindle regulation.	
15	Load reactor	3-phase, 2.5 kVAr.	1
16	Load capacitor	3-phase, 2.8 kVAr.	1
17	Test Bed and Bench with Measuring Instruments includes Synchronizing device	Mobile bench, Digital AC power energy meter use for the study of 1, 2 and 3-phase AC power systems up to 500 VAC / 10 A Power supply: 220-240 VAC, 50/60 Hz. Reactive / active power: 5 kVAr / 5 kW. Cos Phi: 0-1-0. Serial interface: RS485. Transmission protocol: Modbus RTU8N2. Baud Rate: 19200 kB. Digital DC measuring unit for study of DC circuits up to 350 VDC / 12 ADC. Phase sequence indicator, tester for determining the direction of rotation or phase sequence in 3-phase systems. PWM DC control module use as a DC-machine drive in the range up to 1.2 kW, a generator field controller (VAr controller), or a machine brake controller suitable with equipment in the range up to 3.3 kW.	6
18	Data Acquisition and Control software	Data is read into the PC and presented in real-time in both tabular and graph form. Enabling the user to observe, control, record and investigate relevant electrical data. Data may be acquired using one of 4 possible acquirement modes: Single, Timed, Semi-Automatic and Full Automatic. The saved data can then be exported in Excel format for further investigation. Channels 3. Channel output 0-10 V Resolution 12 bit (2.5 mV) Maximum devices 32 devices	
19	Variable Transformer	Input: 3 × 400 V, 8 A, 50~60Hz, Output: 3 × 0-450, 8 A	3

Lot No. 2 (Power Electronics)

Serial No	Equipment Name	Specification	Qty
1	Diode and Uncontrolled Rectifier, Three Phase Rectifier	800V/16A, Power Diodes 1200V/40A, Surge Protection, 1 phase, 3 phase	4
2	SCR and Control Rectifier, TRIAC Control, single phase, three phase module	800V/16A, Trigger control adjustment Operating Voltage 220V, Three Phase Angle Controller: 0~180,	4
3	Chopper, DC Motor	Buck Operation, Boost operation, Buck-Boost operation, Flyback Operation, Input DC: Group of IGBT 800V/60A, MOSFET 100V/48A, with control unit PWM, PFM, TPC	4

		1.5 kVA, Input Voltage 20~350 VDC, Output 20 ~ 350 VAC,	
4	Single Phase Inverter, Motor Drive	Frequency Converter, Shunt Excitation Motor, Shunt Excitation Generator, Function Generator: Sine/Square/Triangle 10Hz to 100KHz in 4 decades, PID Controller	4
5	Three Phase Inverter, Motor Drive	3 kVA, Input Voltage 20~350 VDC, Output 20 ~ 350 VAC, Three phase PWM control Triangle Wave Frequency: 5KHz, 10KHz, 20KHz, Sine wave signal generator, Multiplexer,	4
6	Power meter, RMS meter,	Three phase Squirrel Cage Motor 220Vac, 50Hz, app1500rpm, 1 KW,	
7	Universal Load Resistive/Inductive	0.1~ 30A, 0~1000V, overload protection, 0.3W to 50KW,	4
8	Three phase Transformer	Load resistors: 3 x 100 Ω /1 A Load inductors: 2 x (12.5 - 50) mH/2.5 A Load capacitors: 4-8-16 μ F/450 Vac	4
9	CAPACITORS	AC output through isolation transformer: 3 x 90 V/1.5 A with 3 intermediate sockets at 45 V •Rated value: 2 x 1000 μ F •Rated voltage: 385 V •Protection against polarity inversion. •Discharge resistance: 330 k Ω (t = 330 s)	4
10	Brake System	Open and Close Loop Control, Powder break Power: 400W, Speed: 4000rpm Torque: App 10N-m ,	4
11	Accessories	Connecting Leads, Leads Holder, Frames, Working Bench, Storage Cabinet	4

Lot No. 3 (Electric Power System)

Sr#.	Descriptions	Qty
1	PSCAD Educational Licence	10 users
2	Electrical Power Engineering Trainer	02 Set
A	Generation: Alternator and Parallel Operation <u>Includes the following Modules</u>	
	Three-phase power supply module (panel type)	1

	<p>Suitable for a three-phase supply at the mains voltage and frequency.</p> <p>Output: three-phase + N + T at safety terminals. Protection through differential magneto-thermal switch and pilot lamp. Key operated switch for the three-phase supply and pilot lamps for the three phases</p>	
	<p>Electrical power measurement module</p> <p>Measurement of dc voltage, current, power and energy.</p> <p>Measurement of AC voltage, current, power, active energy, reactive energy, apparent energy, power factor and frequency.</p> <ul style="list-style-type: none"> • Direct voltage: 300 V • Direct current: 20 A • Alternate voltage: 450 V • Alternate current: 20 A • Power: 9000 W <p>Single phase power supply: 90-260 V, 50/60 Hz</p> <p>Communication: RS485 with protocol MODBUS RTU</p>	2
	<p>Maximum demand meter</p> <p>Three-phase network monitoring device. Measures three-phase rms, and peak values of voltages and currents (for 3 and 4 wire connections) as well as active, reactive and apparent power, active, reactive and apparent energy, power factor, THD and frequency.</p> <p>Input voltage: nominal 400Vac (Three phase: 80...690V, 50...400V per phase)</p> <p>Input current: up to 10A (5A with 10:5 current transformers).</p> <p>Operating frequency: 47...63 Hz</p> <p>Auxiliary supply: 80...265 Vac 50/60Hz single-phase from mains.</p>	3
	<p>Power circuit breaker</p> <p>Three-phase power circuit breaker with normally closed auxiliary contact.</p> <p>Contact load capability: 400 Vac, 3 A</p> <p>Supply voltage: single-phase from mains</p>	4
	<p>Power circuit breaker</p> <p>Three-phase power circuit breaker with normally open auxiliary contact.</p> <p>Contact load capability: 400 Vac, 3 A</p> <p>Supply voltage: single-phase from mains</p>	1
	<p>Synchronization indicator</p> <p>Synchronization indicator for qualitative indication of the phase relationship</p>	1

	<p>between mains and voltages of the generator.</p> <p>3 series of 2 lamps each, 220 V: H11 - H12, H21 - H22 and H31 - H32</p>	
	<p>Synchronoscope</p> <p>Rotating light meter with 28 LED on a circular scale and a zero voltage differential indication with 2 LED.</p> <p>Operating voltage: 380 V (120 Vmin)</p> <p>Operating frequency: 40 to 60 Hz</p>	<p>1</p>
	<p>Generator synchronising relay</p> <p>It is a numerical synchronising relay which measures voltage and frequency of two inputs; the voltage, frequency and phase angle of the Generator input (G) are individually compared with those of the Bus input (B) considered as reference.</p> <p>Functions:</p> <ul style="list-style-type: none"> • Automatic Synchronization and Synchro-check • Fast proportional Voltage and Frequency regulation • Phase displacement checking with circuit breaker closing time control • Anti-motoring • Kicker pulse • Event Recording • Modbus Communication Protocol Synchronising of the generator with the reference bus • Normal/Dead Bus operation modes Adjustable Operate time delay • Adjustable Max Voltage difference Anti-motoring control • Automatic Adjusting of phase angle for circuit breaker close • Adjustable Max Frequency difference • Adjustable Max Phase displacement • Adjustable Increase/Decrease pulses to speed regulator • Adjustable Increase/Decrease pulses to voltage regulator • Adjustable Min/Max Bus voltage for synchronising operation • Adjustable Min/Max Bus frequency for synchronising operation • Kicker pulse control on steady phase displacement • Fast synchronisation with control pulses proportional to speed and voltage difference • 3 Digital Inputs optically isolated 2kV 	<p>1</p>

	<p>Resistive load</p> <p>Composed of three resistances, with possibility of star, delta and parallel connection, controlled by three switches with seven steps each.</p> <p>Max. power in single or three-phase connection: 1200 W</p> <p>Rated voltage: 380/220 V Y/D</p> <p>Rated voltage in single-phase: 220 V</p>	1
	<p>Inductive load</p> <p>Composed of three inductances, with possibility of star, delta and parallel connection, controlled by three switches with seven steps each.</p> <p>Max. reactive power in single or three-phase connection: 900 VAr</p> <p>Rated voltage: 380/220 V Y/D</p> <p>Rated voltage in single-phase: 220 V</p>	1
	<p>Capacitive load</p> <p>Composed of three batteries of capacitors, with possibility of star, delta and parallel connection, controlled by three switches with seven steps each.</p> <p>Max. reactive power in single or three-phase connection: 825 VAr</p> <p>Rated voltage: 380/220 V Y/D</p> <p>Rated voltage in single-phase: 220 V</p>	1
	<p>Automatic voltage regulator</p> <p>Suitable for power supplying with variable voltage the braking systems and the excitation of the machines through manual or automatic operation.</p> <p><u>Technical features:</u></p> <ul style="list-style-type: none"> • DC output: 0 to 210 V, 2 A • Automatic regulation of excitation to keep a constant voltage • Power supply: 220 V, 50/60 Hz 	1
	<p>Brushless motor with controller</p> <p>Study of the automatic control for a brushless motor.</p> <p>Control and operation of a brushless motor in voltage.</p> <p>The system allows the study of the operation of a brushless motor of a typical industrial process automation. The student has the opportunity to learn to control and parameterize an automatic operation. The control and monitoring system is done through a software that can:</p> <ul style="list-style-type: none"> • Set system parameters • Draw graphic curves 	2

	<ul style="list-style-type: none"> • Monitor real-time system (torque, speed, etc.) <p><i>Specifications</i></p> <ul style="list-style-type: none"> • 1kW power brushless motor with electronic encoder • Control of the system in frequency and voltage • Mechanical braking system for the analysis of the torque • Encoder outputs for the analysis of speed • Display system for controlling and monitoring events • Button start and stop action and automatic stop intervention in case of alarm • Complete software for PC interfaced to the system via RS485 	
	Braking resistor with cooling fan for brushless motor nominal 5.4Nm	1
	<p>Three Phase Synchronous Machine 4 poles</p> <p>Machine with smooth inductor and three-phase stator armature winding for operation either as alternator or synchronous motor.</p> <ul style="list-style-type: none"> • Power: 1 kVA • Voltage: 220/380 V Δ/Y • Current: 2.6/1.5 A Δ/Y • Rated speed: 1500 rpm, 50 Hz • Rated speed: 1800 rpm, 60 Hz <p>Excitation winding on the rotor.</p>	1
	<p>Universal base for electrical machines</p> <p>Duralumin alloy structure mounted on anti-vibration rubber feet, provided with slide guides for fixing one or two machines.</p> <p>Complete with coupling guard.</p> <p>Provided with rotor locking device for short-circuit test</p>	2
	<p>Communication MODBUS</p> <p>HUB that allows communication and control via PC of the measurement modules and brushless motors.</p>	1
	<p>Three-phase isolation transformer 3kVA</p> <p>Isolation transformer to be placed between the three-phase mains and the laboratories providing a three-phase secondary voltage with isolated neutral suitable for the modules operation.</p> <p>Technical features:</p> <ol style="list-style-type: none"> 1. Three-phase mains input with +10%/-10% adjustment. 2. Output: 400V with +5%/-5% adjustment. 	1

	<ol style="list-style-type: none"> 3. 3 x three phase CEE sockets (3P+N+E) 4. 2 x single phase CEE sockets (2P+E) 5. 2 x single phase type F socket 6. 16 A, 30 mA differential magneto-thermal protection. 7. Motor-protection circuit-breaker: 6.3 to 10 A. 8. Mushroom emergency stop push-button 9. Maximum output power: 3 KVA 	
	SCADA Software Winlog Pro W-NET/I-USB Up to 256 variables sampled SCADA software for control and monitoring. With the possibility to show the application to different devices connected in the same network	1
	Computer All in one	1
	Kit of cables Set of connecting leads of different diameters and lengths	1
	Holder for leads	1
	Frame with 3 levels	2
	Multipurpose table (120x90x80cm) basic version with SHUKO socket	2
	Multifunctional table (60x90x80cm) base version with feet	2
B	Transmission and Distribution <u>Includes the following Modules</u>	
	<p>Motorized variable three-phase power supply</p> <p>Power supply unit for variable 3-phase voltage suitable for supplying AC machines.</p> <ol style="list-style-type: none"> 1. key operated emergency push-button 2. start and stop push-buttons 3. multifunctional digital instrument that supplies voltage, current and power 4. ac output: 3 x 0 ... 400 V, 2 A 5. Modbus interface connectors 6. Supply voltage: three-phase from mains. 	1
	<p>Three-phase transformer</p> <p>Three-phase transformer for feeding a transmission line model 380 kV with scale factor 1:1000</p> <p>Primary: 3 x 380 V windings with tap at 220 V</p> <ol style="list-style-type: none"> 1. star or delta connection Secondary: 3 x 220 V windings with taps at 	2

	<p>+5%, -5%, -10%, -15%</p> <ol style="list-style-type: none"> 2. star connection for 3 x 380 V 3. various star connections possible 4. rated power: 800 VA 5. Tertiary: 3 x 220 V windings 6. delta connection for stabilizing the third harmonic voltage components 7. rated power: 266 VA 	
	<p>Digital module for measuring vector groups and power factor</p> <p>This instrument allows to measure and compare the voltage value and phase angle between two different inputs to determine the transformation ratio and vector group of a three-phase transformer. Both voltage values can be visualized at the same time on the LCD display, and a double digital bar graph makes it easy to compare them.</p> <p>The user can communicate with the device through the RS485 serial port using Modbus protocol, to collect data using a supervision software such as SCADA or Labview.</p> <p>Technical features:</p> <ol style="list-style-type: none"> 1. Automatic Scaling 2. Input range: 0-750 V ac 50/60Hz 3. Accuracy: +/- 0.5% 4. Resolution: 16bits 5. Refresh rate: 0.5s 6. Power supply: 90-260 Vac 50/60Hz 7. Power consumption: 3 VA 8. Communication: Modbus (RS485) 	1
	<p>Single phase digital power meter (active, reactive, apparent)</p> <p>Instrument used to measure the power (P, Q, S) on a single circuit branch in AC and DC. The RMS value of the voltage, current and active power (P) can be visualized on the LCD display along with the reactive (Q) and apparent power (S) values. A digital bar graph makes it easy to monitor the active power's intensity and a dedicated function button allows the adjustment of its scale.</p> <p>The user can communicate with the device through the RS485 serial port using Modbus protocol, to collect data using a supervision software such as SCADA or Labview.</p>	1

	<p>Technical features:</p> <ol style="list-style-type: none"> 1. Automatic Scaling 2. Current range: 0-20 Iac/dc 50/60Hz 3. Voltage range: 0-750 Vac/dc 50/60Hz 4. Power range: 0-1000W, VAR and VA 5. Accuracy: +/- 0.5% 6. Resolution: 16bits 7. Refresh rate: 0.5s 8. Power supply: 90-260 Vac 50/60Hz 9. Power consumption: 3 VA 10. Communication: Modbus (RS485) 	
	<p>Overhead line model</p> <p>Three-phase model of an overhead power transmission line 360 km long, voltage 380 kV and current 1000 A.</p> <ul style="list-style-type: none"> • Scale factor: 1:1000 	2
	<p>Overhead line model 110Km</p> <p>Three-phase model of an overhead power transmission line 110 km long, voltage 380 kV and current 1000 A.</p> <ul style="list-style-type: none"> • Scale factor: 1:1000 	1
	<p>Line capacitor</p> <p>Three-phase capacitors in star connection with exactly half of the operating capability of the 380 kV transmission line model with a length of 360 km. Capacitance: 3 x 2.5 μF, 450 Vac</p>	2
	<p>Petersen coil</p> <p>Inductance with 20 taps for earth fault compensation in transmission lines.</p> <p>Inductance: 0.005 ... 2 H</p> <p>Rated voltage: 220 V</p> <p>Rated current: 0.5 A</p>	1
	<p>Double busbar with two disconnectors</p> <p>module with insulated panel, Suitable for extending the double busbar system.</p> <p>The module must have insulated front panel and four light push buttons (two</p>	3

	<p>red and two green).</p> <p>Each busbar must have a supply branch that will be connected or disconnected by using a disconnecter.</p> <p>It must be possible to control manually the power breaker switch using two couples of push-buttons “on”and “off” or externally via the switching contact PLC or RELAY.</p> <p>This power contacts state shall be indicated by leds:</p> <p>Green led = open contacts.</p> <p>Red led = closed contacts.</p> <p>While at SIGNAL OUTPUT terminals will be available a TTL level:</p> <p>Low level (0V)= open contacts.</p> <p>High level (5V)= closed contacts.</p> <p>The RS flip-flop state shall be indicated by a led: Yellow led = set flip-flop.</p> <p>4 mm. safety terminal and 2 mm. terminals included on the front panel for the electrical connection.</p> <p>It must be supplied with manual in English language</p>	
C	<p>Protection Techniques:</p> <p><u>Includes the following Modules</u></p>	
	<p>Single-phase current transformer</p> <p>Current transformer for measuring and protection purposes.</p> <p>Rated primary currents: 5/1 A</p> <p>Rated secondary current: 1 A</p> <p>Performance and class: 15 VA / 1 - 5 VA / 10P5</p> <p>Frequency: 50 - 60 Hz</p>	1
	<p>Three-phase current transformer</p> <p>Three single-phase current transformers for measuring and protection purposes.</p> <p>Rated primary currents: 5/1 A</p> <p>Rated secondary current: 1 A</p> <p>Performance and class: 15 VA / 1 - 5 VA / 10P5</p> <p>Frequency: 50 - 60 Hz</p>	1
	<p>Summation current transformer</p> <p>Ring-type core current transformer suitable for the detection of earth faults and</p>	1

<p>for current determination with differential protection.</p> <p>Primary rated current: 5 x 2.5 A</p> <p>Transformation ratio: 2.5/1</p> <p>Secondary rated current: 1 A</p> <p>Rated power: 10 VA</p> <p>Accuracy class: 1</p>	
<p>Ct load</p> <p>Load for the single-phase current transformer consisting of two separated ohmic resistors.</p> <p>Fixed resistor: 0.5 Ω, load 7 A</p> <p>Variable resistor: 0 ... 60 Ω, load 1 A</p> <p>Range: 0 ... 100%</p> <p>The variable resistor is protected with a 1 A fuse</p>	1
<p>Vt load</p> <p>Load for the single-phase voltage transformer consisting of three separated ohmic resistors.</p> <p>Fixed resistor: 220 Ω, load 0.5 A (0.5 A fuse)</p> <p>Variable resistor: 330 ... 1930 Ω, load 0.25 A (0.25 A fuse)</p>	1
<p>Single-phase voltage transformer</p> <p>Voltage transformer for measuring and protection.</p> <p>Rated primary voltage: 380 V/$\sqrt{3}$ (220 V)</p> <p>Rated secondary voltages:</p> <p>100 V/$\sqrt{3}$, Performance 15 VA</p> <p>100 V/3, Performance 5 VA</p> <p>Accuracy class: 1</p> <p>Frequency: 50 - 60 Hz</p>	1
<p>Three-phase voltage transformer</p> <p>Three single-phase voltage transformers for measuring and protection.</p> <p>Rated primary voltage: 380 V/$\sqrt{3}$ (220 V)</p> <p>Rated secondary voltages:</p> <p>100 V/$\sqrt{3}$, Performance 15 VA</p> <p>100 V/3, Performance 5 VA</p>	1

	Accuracy class: 1 Frequency: 50 - 60 Hz	
D	Protection Techniques: Protection Relays <u>Includes the following Modules</u>	
	<p>Feeder manager relay</p> <p>Three-phase Current, Voltage and Earth Fault multifunction relay for protection and management of MV/HV distribution lines. Real time measurement of the primary value of the input quantities are continuously available from relay's display and from the serial communication port.</p> <p>Relay's programming and setting can be made directly by the front face keyboard or via the serial communication ports. Setting, event recording and oscillography are stored into non-volatile memory (E2prom). The relay is fitted with a multivoltage, auto ranging power supply unit self-protected and transformer isolated.</p> <ul style="list-style-type: none"> • Three levels for phase current independently programmable as directional or non-directional • Three levels for Earth Fault independently programmable as directional or non-directional • Selectable Time current curves according to IEC and IEEE standards • Two over/under voltage levels • Two over/under frequency levels • Zero sequence overvoltage level • Two Negative Sequence current levels • One Positive Sequence overvoltage level • One Negative Sequence under voltage level • Two Reactive Power (VAR) control levels (optional) • Trip circuit supervision • Associated Circuit Breaker control (OPEN / CLOSE) • Breaker failure protection • RS232 serial communication port on Front Face • RS485 • Output relays totally user programmable • Digital inputs user programmable 	1

E	<p>Energy Management</p> <p><u>Includes the following Modules</u></p>	
	<p>Three-phase asynchronous machine 4P cage , 1.5kW , 50 / 60Hz</p> <p>Induction motor with three-phase stator winding and squirrel cage buried in the rotor.</p> <ul style="list-style-type: none"> • Power: 1.5 kW • Voltage: 220/380 V Δ/Y • 4 poles • Rated speed: 1500 rpm, 50 Hz • Rated speed: 1800 rpm, 60 Hz 	1
	<p>Reactive power controller</p> <p>Relay for automatic adjustment of the power factor I n systems with inductive load.</p> <p>Power factor adjustment range: 0.9 ... 0.98</p> <p>Sensitivity: 0.2 ... 1.2 K</p> <p>2 decimal digit display</p> <p>Output relay for batteries connection: 4 NO contacts with LED indication</p> <p>Output relay contact: 400 Vac, 5 A</p> <p>Supply voltage: three-phase from mains Ammetric input circuit: 5 A (250 mA min.)</p> <p>Automatic detection of the frequency.</p>	1
	<p>Switchable capacitor battery</p> <p>Switching system with which different capacitance values can be connected to the mains for reactive power compensation.</p> <p>Four switching levels each consisting of 3 capacitors in star connection with discharging resistors:</p> <ol style="list-style-type: none"> 1. level 1 (b1 coil): 3 x 2 μF/450 V 2. level 2 (b2 coil): 3 x 4 μF/450 V 3. level 3 (b3 coil): 3 x 8 μF/450 V 4. level 4 (b4 coil): 3 x 16 μF/450 V <p>Compensation power: max 1360 VAr at 50 Hz, 380 V</p> <p>Each switching level can be controlled separately:</p> <ol style="list-style-type: none"> 1. internally, through 4 toggle switches 	1

	2. externally, through 4 control inputs Coil operating voltage: 220 Vac	
	<p>Load Manager</p> <p>Load management module with 3 independent single phase outputs for the dynamic study of different load types. The outputs are switchable via Modbus RTU protocol using RS485 serial port. It can be used as load when inserting the included lamps in the sockets or to select external loads.</p> <p>Technical features:</p> <ol style="list-style-type: none"> 1. Power supply: 90÷260 Vac, 50÷60 Hz 2. Communication: Modbus RTU RS485 (2 wire). 3. 3 single phase outputs, 110...230Vac - 500W max. 	1
	<p>MULTIFUNCTION DIGITAL HMI GATEWAY</p> <p>Gateway that acts as an HMI Interface that can connect with PLC, Inverter, and many more controllers to perform event logging and macro commands execution. It provides the SCADA system</p> <p>wireless and remote communication with serial devices on the internet through RS485 and Ethernet using Modbus protocol. The cMT Viewer visual interface can run on different platform devices including iPad, Android and PC (Windows OS).</p> <p>Technical features:</p> <ol style="list-style-type: none"> 1. Power supply: 90÷260 Vac, 50÷60 Hz 1. Communication: 2 RJ45 ports, Modbus RS485 (2-4 wire). 2. Data acquisition through USB 	1
	<p>Smart Grid</p> <p><u>Includes the following Modules</u></p>	
	License WINLOG PRO W-NET/I1-USB+ fino up to 512 variables sampled DL SCADA3+	1
	<p>Circuit Breaker</p> <ul style="list-style-type: none"> • Current Max.: 10A • Intervention threshold differential: 30mA <p>It shall correspond to a protective module that contain one input, one output and a 2-pole residual current device.</p> <p>It shall have insulated front panel that will include residual current device, AC input terminals and AC output terminals.</p>	1
	<p>Inverter GRID</p> <p>Grid tie power inverter that must ensure that the power supplied will be in</p>	1

	<p>phase with the grid power.</p> <p>The module shall have 12 V solar panel input, ground terminal and AC terminals; in this module power inverter must be programmed to supply load from PV source and surplus energy will be sent to the mains grid.</p> <p>The module must have insulated front panel and include the following elements:</p> <ol style="list-style-type: none"> 1) island protection indicator 2) output power indicators 3) PV panel input terminals 4) PE terminal 5) mains terminals <ul style="list-style-type: none"> • Current Max.: 30A • Voltage: 12V • Power: 360W 	
	<p>Photovoltaic solar panel</p> <p>85W, 12V, complete cell for measuring of solar radiation and with a sensor temperature</p>	1
	<p>Connecting leads with safety terminals</p>	1
	<p>Double Three-level work frame with anodized aluminium profiles</p>	1
	<p>Working bench</p> <p>Metal framework with adjustable feet. Worktop made of laminated wood. Dimensions: 2x0.8x0.9 (h) m. approx.</p>	2
	<p>Signal bar to double ring</p>	1
	<p>Wind simulator module</p> <p>System composed of wind speed and direction sensor, power supply, fan, potentiometer, measurement circuit, RJ45 and RS485 port. It allows simulating the wind force and direction.</p>	1
	<p>Panel with 4 lamps for sun simulation</p> <p>It must be possible to adjust manually or automatically the light intensity controlled by a potentiometer through a 0-10 V input, to allow to perform experiments with different light intensities, then simulating the light conditions from dawn to dusk.</p> <ol style="list-style-type: none"> 1. 4 halogen lamps 300 W each 2. Dimmer to control the intensity of light 3. 10 A Differential Circuit Break 	1

	4. 10 k Potentiometer	
	Main sockets SOCKET-MAINS	1
	Socket extension	1
	Three-phase power supply Power supply unit for three-phase connection with 4-pole cam mains switch. Three-phase indicator lamps. Output through 5 safety terminals: L1, L2, L3, N and PE. Switch for simulation of wind or photovoltaic energy power source. Modbus RS485 Protocol Communication	1
	Three-phase transformer	1
	<u>Optional with Smart Grid:</u> Wind Energy Trainer TECHNICAL SPECIFICATIONS <ol style="list-style-type: none"> 1. A wind turbine, 400W, 12Vac. 2. Anemometer and wind direction sensor mounted on a stand. 3. A supporting frame for the modules. 4. A braking resistance, 250 W, 3 Ohm. 5. A load module. It includes two mains voltage lamps, dichroic 35W and LED 3W, with independent switches. 6. A module for the measurement of: wind speed (m/s), wind direction (degrees), current up to 30V, $\pm 15A$ (two dc ammeters), voltage up to 30V and power up to 1000W. 7. Grid tie inverter. 8. An energy measurement module. 9. A differential magneto-thermal switch. 10. A network distributor. 11. A motor kit for driving the wind turbine, composed of a stepper motor and a 300 W power supply. 	1

Lot No. 4 (Control System and Instrumentation)

Serial No	Equipment Name	Specification	Quantity
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Base Platform for Controls with Wifi Connectivity

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|---|--|--|----|
| 1 | Base Platform for Controls with Wifi Connectivity | <ol style="list-style-type: none">1. Software must include interactive web and desktop soft front panels, instrumentation support for Windows and Mac, API support for LabVIEW and text-based languages, shipping examples, and detailed help files2. Hardware must have atleast seven hardware instruments plus control I/O containing 16 AI, 4 AO, and 40 DIO3. Must have 4-channel, 100 MS/s (400 MS/s single channel), 50 MHz oscilloscope with 14-bit resolution4. Must have 16-channel, 100 MS/s logic analyzer/pattern generator5. Must have 16-channel, 1 MS/s analog input with 16-bit resolution6. Must have 40 DIO lines individually programmable as input, output, PWM, or digital protocols7. Wifi Support IEEE 802.11 a/b/g/n8. Programming Language Support: LabVIEW, Python, C | 10 |
|---|--|--|----|

Power Cord, Cables and Probes must be included

Controls Add on Board for Base Platform (Contains both DC Motor and Inverted Pendulum)

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|---|---|--|----|
| 2 | Controls Add on Board for Base Platform (Contains both DC Motor and Inverted Pendulum) | <p>Must be compatible with “Base Platform for Controls with Wifi Connectivity”</p> <p>Highly linear brushed DC motor</p> <p>Removable inertia load for variable dynamics</p> <p>High-resolution optical encoder and current sense</p> <p>Optional pendulum attachment for advanced controls</p> <p>Highly Linear Motor Response: To enable directly relational modelling and control design</p> <p>Open and Customizable: Access and customize all levels of the interfacing and control software using LabVIEW</p> <p>Complete Package: Hardware and courseware enable courses to cover the essentials of introductory and advanced controls</p> <p>Simulink Compatibility: Accelerate control design and deployment using Quanser’s QUARC platform</p> | 10 |
|---|---|--|----|

Sensors Board for Base Platform

3	Sensors Board for Base Platform	<ol style="list-style-type: none"> 1. Must be compatible with “Base Platform for Instrumentation & Measurement with Wifi Connectivity 2. Board must introduce students to various sensors that measure pressure, strain, temperature, contact, distance, angular displacement, and dynamics. 3. Must have 11 Diverse Sensors: Measure temperature, strain, pressure, distance, rotation, proximity, touch, and inertia 4. Must have ready to use: comprehensive ABET-aligned workbooks, software, and additional resources 5. Easy Operation: Pre-installed sensors save on time and frustration 6. Accelerate Discovery: Learn the fundamentals of measurement, calibration, and sensor applications 7. Fully compatible with LabVIEW 	10
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Lot No. 5 (DSP and Signals & Systems)

S.No	Equipment Name	Specification	Qty
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Base Platform for Controls with Wifi Connectivity

1	Base Platform	<ol style="list-style-type: none"> 8. Software must include interactive web and desktop soft front panels, instrumentation support for Windows and Mac, API support for LabVIEW and text-based languages, shipping examples, and detailed help files 9. Hardware must have atleast seven hardware instruments plus control I/O containing 16 AI, 4 AO, and 40 DIO 10. Must have 4-channel, 100 MS/s (400 MS/s single channel), 50 MHz oscilloscope with 14-bit resolution 11. Must have 16-channel, 100 MS/s logic analyzer/pattern generator 12. Must have 16-channel, 1 MS/s analog input with 16-bit resolution 13. Must have 40 DIO lines individually programmable as input, output, PWM, or digital protocols 14. Wifi Support IEEE 802.11 a/b/g/n 15. Programming Language Support: LabVIEW, Python, C <p>Power Cord, Cables and Probes must be included</p> <ul style="list-style-type: none"> • Seven hardware instruments plus control I/O containing 16 AI, 4 AO, and 40 DIO • 4-channel, 100 MS/s oscilloscope sample rate with 14-bit resolution and 50 MHz bandwidth 	20
2	Emona SIGEx-311 add on board or Equivalent	<ul style="list-style-type: none"> • 16-channel, 100 MS/s logic analyzer/pattern generator • 16-channel, 1 MS/s analog input with 16-bit resolution • 40 DIO lines individually programmable as input, output, PWM, or digital protocol 	20
3	NI Academic LabVIEW Licence teaching lab suite		
4	Emona DSP Board with myDAC or equivalent	<p>Bring Signal Processing Theory and Signals & Systems classes to life with myDSP: a hands-on, real-time myDAQ application board.</p> <p>Implement the FIR and IIR filters described in textbooks using the power of the myDAQ suite of signal sources and measuring instruments & analyzers.</p> <p>myDAQ™, EMONA myDSP and the myDSP LabVIEW™ suite of programs provide a completely self-contained</p>	20

experiment environment.

- o Configure and design Digital Filters from a LabVIEW™ SFP, (or your own LV code) and run on a real-time DSP
- o No programming involved. Easy to use GUI
- o Anti-alias (switchable) and reconstruction filters included
- o Complete, self-contained experiment environment
- o Daisy-chainable to other myDAQ boards

Student Data Acquisition Device

Analog Input Number of channels: 2 differential or 1 stereo audio input ADC resolution: 16 bits Maximum sampling rate: 200 kS/s Timing accuracy: 100 ppm of sample rate Timing resolution: 10 ns Range: Analog input ±10 V, ±2 V, DC-coupled Audio input ±2 V, AC-coupled Passband (-3 dB) Analog input DC to 400 kHz Audio input 1.5 Hz to 400 kHz Connector type Analog input Screw terminals Audio input 3.5 mm stereo jack Input type (audio input): Line-in or microphone Microphone excitation (audio input): 5.25 V through 10 kΩ Input FIFO size: 4,095 samples, shared among channels used Maximum working voltage for analog inputs (signal + common mode): ±10.5 V to AGND Common-mode rejection ratio (CMRR) (DC to 60 Hz): 70 dB Input impedance Device on AI+ or AI- to AGND >10 GΩ || 100 pF AI+ to AI- >10 GΩ || 100 pF Device off AI+ or AI- to AGND 5 kΩ AI+ to AI- 10 kΩ Anti-aliasing filter: None Overvoltage protection AI+ or AI- to AGND: ±16 V Audio input left and right: Non

Lot No. 6 (Communication)

Serial No	Equipment Name	Specification	Quantity
		DATEx-IQ HARDWARE BLOCKS:	
		100kHz BPF	
		150kHz LPF	
		ADDER x 2	
1	Emona Communication add on board or equivalent	1. ANALOG MUX 2. COMPARATOR 3. I&D and I&H 4. LIMITER 5. MASTER SIGNALS	10

6. MULTIPLIER x 4
 7. PARALLEL/SERIAL
 8. PHASE SHIFTER
 9. PRECISION RECTIFIER
 10. RC LPF
 11. RRC LPF x 4
 12. SAMPLE & HOLD SERIAL/PARALLEL
 13. SEQUENCE
 14. GENERATOR x 2
 15. SPEECH
 16. TLPF
 17. VCO
 18. X-OR
 19. THROUGH NI ELVIS III DAC and FUNCTION GENERATOR
 20. NOISE GENERATOR
 21. VARIABLE DCV
 22. OSCILLATOR
 23. PULSE GENERATOR
 24. SDR IQ SIGNALS
1. Device with 4 RF Receivers Channels
 2. Frequency Range 10 MHz to 6 GHz
 3. 80 MHz Bandwidth
 4. GPS-Disciplined OCXO, Reconfigurable USRP Software Defined Radio Device
 5. Designed for over-the-air signal acquisition and analysis.
 6. Features a two-stage super heterodyne architecture with four independent receiver channels and shares local oscillators for phase-coherent operation.
 7. Kintex-7 FPGA programmable FPGA Module.
 8. Equipped with a GPS-disciplined 10 MHz oven-controlled crystal oscillator (OCXO) Reference Clock, which improves

2 Wireless
 Communication System
 USRP

1

frequency accuracy and synchronization.

3

USRP TRX with
Accessories

1. Specifications:
2. Device with 2 RF Transmitter Channels and 2 RF Receiver Channels
3. Built on the reconfigurable I/O (RIO) architecture.
4. Frequency Range 10 MHz to 6 GHz
5. Transmitter path has 160 MHz of bandwidth throughout the full frequency range of the device.
6. GPS-Disciplined OCXO, Reconfigurable Software Defined Radio Device.
7. Integrated hardware and software solution for rapidly prototyping high-performance wireless communication systems.
8. Enables to prototype a range of advanced research applications that include multiple input, multiple output (MIMO); synchronization of heterogeneous networks; LTE relaying; RF compressive sampling; spectrum sensing; cognitive radio; beamforming; and direction finding.
9. Equipped with a GPS-disciplined 10 MHz oven-controlled crystal oscillator (OCXO) reference clock.

1

4	<p>Wireless Communication system teaching bundle, 2X USRP cables, courseware.</p>	<p>Gain range (The output power Software defined transceivers (2X2 MIMO, 70 MHz to 6 GHz) Transmitter Frequency range: 70 MHz to 6 GHz Frequency step <1 kHz Maximum output power (Pout): 20 dBm resulting from the gain setting varies over the frequency band and among devices): 89.75 dB Gain step: 0.25 dB Frequency accuracy (based on temperature- compensated crystal oscillator): 2.5 ppm Maximum instantaneous real-time bandwidth: 56 MHz Maximum I/Q rate Streaming: 15 MS/s Burst (One channel: 61.44 MS/s) Burst (Two channel: 30.72 MS/s) Digital-to-analog converter (DAC): 12 bits Receiver Frequency range: 70 MHz to 6 GHz Frequency step <1 kHz Gain range: 76 dB Gain step: 1.0 dB Maximum input power: -15dBm Noise figure: 5dB to 7dB Frequency accuracy: 2.5ppm Maximum instantaneous real-time bandwidth: 56 MHz Maximum I/Q rate Streaming: 15MS/s Burst(One channel: 61.44MS/s) Burst(Two Channel: 30.72MS/s) ADC: 12 bits</p>	5
5	<p>ADALM PLUTO or equivalent</p>	<ol style="list-style-type: none"> 1. Portable self-contained RF learning module 2. Cost-effective experimentation platform 3. Based on Analog Devices AD9363--Highly Integrated RF Agile Transceiver and Xilinx® Zynq Z-7010 FPGA 4. RF coverage from 325 MHz to 3.8 GHz 5. Up to 20 MHz of instantaneous bandwidth 6. Flexible rate, 12-bit ADC and DAC 7. One transmitter and one receiver, half or full duplex 8. MATLAB®, Simulink® support 9. GNU Radio sink and source blocks 10. libiio, a C, C++, C#, and Python API 	20

11. USB 2.0 Powered Interface with Micro-USB 2.0 connector
12. High quality plastic enclosure

6 Internet TCP/IP Protocol Training System

CPU : ARM9, samsung, 32-bit RISC, 166 MHz
 Flash ROM first level : 512 Kbytes
 Flash ROM second level : 2 Mbytes
 SDRAM : 64 Mbytes(data width 32bits) at 133MHz
 Timer/counter : Six 16-bit multi-function
 Watch dog timer: 8-bit
 USB Port
 LED: 10/100/active
 Ethernet:2 ports, 10/100 Mbps, RJ-45
 Power Requirements: 100 ~ 240V, 50/60 Hz, 60VA max

10

Lot No. 7 (RF and Microwave)

Sr. No.	Equipment	Specifications	Quantity
1.	Digital Oscilloscope	1. Analog Bandwidth ~300 MHz 2. Analog channels = 4 3. ADC Resolution 10Bits	1
4.	Mixed Signal Oscilloscope	5. Analog Bandwidth ~1 GHz 6. Analog channels = 4 7. Digital channels: 8 or more 8. ADC Resolution 10Bits	1
9.	RF/analog signal generator (CW source)	10. Analog bandwidth ~12 GHz	1

11.	Vector Signal Generator	12. RF bandwidth ~12 GHz 13. Custom digital modulations: higher order QAM 14. Signal bandwidth ~120 MHz 15. Frequency extension possible	1
16.	Spectrum analyzer	17. RF bandwidth >~3 GHz 18. IF out (BW): ~20-40 MHz 19. Modulation analysis (AM, FM, ASK, FSK) 20. Advanced measurements (ACLR, OBW, Spur Emission, TOI)	1
21.	Vector signal and spectrum analyzer	22. RF bandwidth >~12 GHz 23. With vector signal analysis option (~40 MHz analysis bandwidth) 24. Additional interfaces: IF out, trigger out, GPIB 25. IF out (BW): ~40-80 MHz 26. EMI measurement capability 27. External mixer support 28. Frequency extension possible	1
29.	Vector Network Analyzer	30. RF bandwidth ~3GHz 31. 2 port VNA (small signal s parameters)	4
32.	Vector Network Analyzer (High end)	33. RF bandwidth >~12GHz 34. 2 port VNA (small signal s parameters) 35. With amplifier large signal analysis 36. Frequency extension possible	1
37.	VNA Accessories	38. RF Cable 50 Ohm; 3.5mm(m) to 3.5mm(m); DC to 18GHz, flexible, phase stable; (0.6meter) 39. VNA Calibration Kits	10 2
40.	Communication Transceiver Training Kit	1. Up/down converter path ~3 GHz 2. IQ modulator/demodulator 3. Adjustable built-in LO 4. Variable attenuation/amplification in up/down paths 5. Access to the output at various points in the signal path	8

		34. 50-ohm terminations, SMA	40
		35. RF short, SMA	10
36.	Minicircuits active/passive components inventory	37. 1W SMA Attenuators, 3 dB, (up to 12 GHz)	5
		38. 1W SMA Attenuators, 6 dB, (up to 12 GHz)	5
		39. 1W SMA Attenuators, 10 dB, (up to 12 GHz)	5
		40. 1W SMA Attenuators, 20 dB, (up to 12 GHz)	5
		41. 1W SMA Attenuators, 30 dB, (up to 12 GHz)	5
		42. Bias Tees SMA (up to 12 GHz)	10
		43. Bias Tees SMA (up to 18 GHz)	10
		44. Low Noise Amplifiers (DC-6 GHz)	5
		45. Linear Power Amplifiers (DC-6 GHz)	5
		46. High efficiency Power amplifiers (DC-6 GHz)	2
		47. Hybrid Couplers (DC-6 GHz)	10 each
		1. 90 degree and 180 degree	
		48. Directional Couplers 20 dB, (DC- 6 GHz)	10
		49. 2-Way Power Divider/combiner (DC-6 GHz)	10
		50. DC block: DC – 12 GHz	10
		51. DC bloc: DC – 18 GHz	10
52. Downconversion mixer – RF(DC-6 GHz)	5		
53. Upconversion mixer – IF(DC-6 GHz)	5		
54. Variable gain amplifiers (DC-6 GHz)	5		
55.	Antenna teaching kit	56. Antenna radiation pattern/characterization (DC-6 GHz)	4
		57. Software for antenna characterization	4 users
		58. Antenna Labs Courseware	1
		59. Antenna Instructor Courseware	1
60.	RF/EM/Antenna simulation software suite	Academic/research perpetual license	1 license
		61. RF circuit-level simulator	
		62. EM simulations	
		63. 3D Antenna simulations	

PCB design	64.	Lithography based PCB Structuring	1
	1.	Light source	
	2.	Set of all necessary tools, accessories, and chemicals	
	65.	Through hole plating setup with conductive paste	1
	1.	Hot air oven	
	2.	Complete kit including paste and other accessories	1
	3.	Vacuum table	
	66.	Through hole plating setup with Rivet	
	1.	Complete kit including vias of various diameters	1
Soldering station	67.	Various soldering tips suitable for RF SMD components	
	68.	Hot plate	1
	69.	Digital temperature control	
	70.	Hot air (blower)	
Trinocular Stereo Zoom Microscope for SMD soldering	71.	Eyepieces: 20mm and 30mm	
	72.	Magnification: up to 90x	
	73.	Zoom Objective: 0.7x-4.5x	1
	74.	Four-Zone LED Ring Light	
	75.	0.5x and 2.0x Barlow Lens	

Lot No. 9 (Physics)

Sr. No	Apparatus	Specifications	Qty
1	Faraday's Law Apparatus	Induction Wand, Large Rod Base, Stainless Steel Rod, Multi-Clamp, Voltage Sensor, Magnetic Field sensor, Rotary Motion Sensor	2
2	Newton's Laws Apparatus	Experimental setups for demonstrating Newton's Laws	1
3	Projectile Motion Apparatus	Launch angle: 0 to 70 degrees, Launch speed: 0-6 m/s, Variable Launch Speed, Flexible Launch Positions	2

4	Coulomb's Law Demonstrator	Third Conductive Sphere, Charging Probe, Allen Wrench and Calibration Masses	2
5	Inverse Square Law Demonstrator	Sliding stand with precise measurement, Light Source with height adjustment, One fixed stand and sliding stand, Photo detector with height adjustable facility, Online product tutorial	1
6	LRC Circuit Apparatus	With Accessories	2
7	Universal Interface Capstone 850		5

Lot No. 10 (Electrical Circuits)

Sr. No	Instrument	Specification	Qty
1.	Home Electric Wiring Trainer	<p>Its features should include the following:</p> <ul style="list-style-type: none"> • 1 standard electrical enclosure unit with 4 breakers (15A, 20A, 30A) • 1 industrial bell/buzzer assembly • 2 standard electrical outlet receptacles • 2 single standard electrical switches • 2 3-way standard electrical switches • 1 standard 240V receptacle • 2 standard light bulbs with wiring base • Single Phase Energy Meter, MCB, Controlling Switches <p>This trainer should include:</p> <ul style="list-style-type: none"> • Insulation resistance • Ground resistance • Auxiliary earth resistivity • Earth point rod • Earth voltage • Phase test points • Leakage current load for test • DC voltage output for test • Electric leak breaker • Circuit breaker • AC output socket for load • Power indicator • Input power 	4
2.	Electric Installation Safety Measurement Trainer	<p>DC power supply: (1) Fixed DC output : +5V, 1 A</p> <p>(2) Fixed DC output : -5V, 300mA</p> <p>(3) Variable DC output : +3V ~ +15V, 500mA</p> <p>(4) Variable DC output : -3V ~ -15V, 500mA</p> <p>Mode selector switch : "TTL" or "CMOS" position, pulse</p>	4
3.	Advanced Digital Training System		20

generator, pulser switches, 8 bits data switches, digital probe, 8 bit LED

Two digits of 7-segment LED display

Pulse generator: (1) Duty cycle : 50% (2) Frequency range : 1 Hz ~ 10 Hz 10 Hz ~ 100 Hz 100 Hz ~ 1 KHz 1 KHz ~ 10 KHz 10 KHz ~ 100 KHz 100 KHz ~ 1 MHz (3) Amplitude : 0 ~ 10Vpp (4) TTL/CMOS mode output TTL : +5V CMOS : +VDC (depends on the + VDC output)

Eight bits LED display

Voltage Rating: 300V

Current Rating: 5A

Output Power Rating: 1500W~1560W

C.V / C.C Priority

Accuracy and linearity: $\pm 0.5\%$ of rated output voltage.

Alarm Control: Clear alarms with a LOW (0V to 0.5V) or short-circuit.

Shutdown: Turns the output off with a LOW (0V to 0.5V) or short-circuit.

Buttons: Lock/Local(Unlock), PROT(ALM_CLR), Function(M1), Test(M2), Set(M3), Shift, Output

Knob: Voltage and Current

RS-232 & RS-484: Complies with the EIA232D / EIA485 Specifications

Adjustable voltage/current rise and fall time

High Efficiency and High Power Density

Standard Interface: USB, LAN, RS-232, RS-485, Analog Control

12 Programmable power Supply

1

13 Power Supply

1. 2/3/4 Independent Isolated Output
2. 4 LED Display Sets: 3 digits after decimal point
3. Minimum Resolution :
4. 1mV/1mA(GPD-2303D/GPD-3303S/GPD-4303S)
5. 100mV/10mA(GPD-3303D)
6. Digital panel control(rotary encoder Switch, rubber key with indicator)
7. User-friendly operation, coarse/fine volume control
8. 4 Sets Save/Recall

15


		9. Key-Lock	
		10. Output on/off	
		11. Tracking Series and Parallel mode	
		12. Smart cooling fan achieving low noise	
		13. USB Standard Interface	
		14. PC Software & USB Driver	
		1. Channels 2 + Ext Bandwidth DC ~ 100MHz (-3dB) Rise Time 3.5ns Bandwidth Limit 20MHz	
		2. Vertical Sensitivity Resolution 8 bit :1mV*~10V/div	
		3. Input Coupling AC, DC, GND	
		4. Input Impedance 1M Ω // 16pF approx.	
		5. DC Gain Accuracy* $\pm 3\%$	
14	Oscilloscope	6. Polarity Normal & Invert	15
		7. Maximum Input Voltage 300Vrms, CAT I (300Vrms CAT II with GTP-070B- 4/100B-4 10:1 probe)	
		8. Offset Position Range 1mV/div : $\pm 1.25V$ 2mV/div ~ 100mV/div : $\pm 2.5V$ 200mV/div ~ 10V/div : $\pm 125V$ Waveform Signal Process Plus, -, \times , \div , FFT, FFTrms, User Defined Expression FFT: Spectral magnitude. Set FFT Vertical Scale to Linear RMS or dBV RMS, and FFT Window to Rectangular, Hamming, Hanning, or BlackmanHarris	
		1. 0.1Hz to 5/12/25 MHz with in 0.1Hz Resolution	
		2. Sine, Square, Triangular, Noise and Arbitrary Waveform	
		3. 20MSa/s Sampling Rate, 10 bit Vertical Resolution and 4k Point Memory for Arbitrary Waveform	
		4. 1% ~ 99% adjustable duty cycle for Square Waveform	
		5. Waveform Parameter Setting Through Numeric Keypad Entry & Knob Selection	
15	Function Generator	6. Amplitude, DC Offset and Other Key Setting Information Shown on the 3.5" LCD Screen Simultaneously	15
		7. AM/FM/FSK Modulation, Sweep, and Frequency Counter Functions (AFG-2100 only)	
		8. USB Device Interface for Remote Control and Waveform Editing	

Lot No. 11 All in One Computers

1	All in One Computer	9.	Dell OptiPlex 5270 All-in-One XCTO Intel Core i7-9700 (8 Cores/ 12MB/ 8T/ 3.0GHz/ 65W) 16GB (1x16GB) DDR4 2666MHz Non-ECC RAM 2.5 inch 1 TB 7200rpm SATA Hard Disk Drive OptiPlex All-in-One with Basic Stand 21.5" Narrow Bezel FHD IPS (1920x1080) resolution with Glare-Free finish on Non-touch Intel Integrated Graphics Integrated Intel 1219-LM Ethernet LAN 10/100/1000 Mbps 80 PLUS Internal Power Supply Unit 1 USB3.1 Type C Gen 2 port (Side); 1xUSB 3.1 Type A Gen 1 with PowerShare (side); 2xUSB 3.1 Type A Gen 1 (rear); 2xUSB 2.0 with Power On/Wake-up support (rear); 1 Universal Audio Jack (side); 1 Audio Line-Out (rear); 1 RJ-45 (rear); 1 Power Connection (rear)' Dell Adapter - DisplayPort to VGA Internal 2W Windows 10 Pro (64bit) English
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70

Lot No. 12. (Lab Furniture)

Sr. No	Items	Specifications	Quantity and Figures
1	STANDING ISLAND WORKBENCH WITH HIGH LOADBEARING RACKS	Specifications 1. Dimensions: H x W x L (36" x 60" x 50') 2. Dimensions: H x W x L (36" x 72" x 63') Characteristics: Anti-bacterial powder coated steel frame structure, leveling glides on all legs. Including 1.5"x1.5" fully welded Tubular Construction and Rectangular rear leg 1.5"x 1.5" . 16 SWG. Legs should be on every 5' or less. Load bearing capacity: 10Kg/ SQFT Racks (as shown in picture): (Size: 15" x 62' Long) Bookend bracket island cross member mounting hardware included corian or Equivalent shelves 5mm.20 SWG Worktop: Corian or equivalent Anti-bacterial, durable, seamless, stain	

resistant, International certified

Color: Customized

Suspended cabinet (WxDxH) =
RFTx18"x24"

Two shelves in the cabinet

Cabinet material: Powder coated Mild
steel/Stainless steel or equivalent

Locking system with each cabinet

Tabletop must be coupled with high
quality sockets/plugs and long wire for
electricity connections

2 STANDING
HEIGHT
PERIMETER
ASSEMBLY WITH
SHELVES AND
ELECTRICAL
RACEWAYS

Specification:

Size: 30" wide x 130' Length, Anti-bacterial
powder coated steel frame structure,
leveling glides on all legs. Including
1.5"x1.5" fully welded Tubular
Construction and Rectangular rear leg
1.5"x 1.5", 16 SWG. Legs should be on
every 5' or less.

Worktop: Corian or equivalent

Anti-bacterial, durable, seamless, stain
resistant

Color: Customized

Worktop: Corian or equivalent, Anti-
bacterial, durable, seamless, stain
resistant, International certified

Color: Customized

Shelving System:

Size: 15" wide x 240' Long

Bookend bracket island cross member
mounting hardware included traspa or

Equivalent shelves 5mm,20 SWG

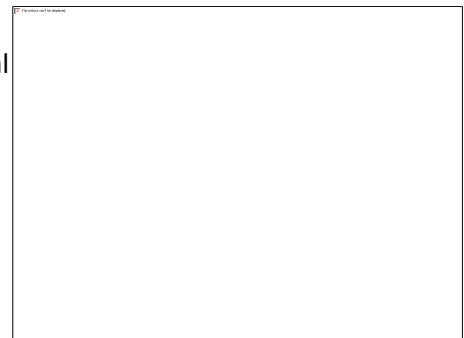
Electric Raceways: 150RFT

Single gang Electrical pedestal, Scheinder
International Socket, 3 sockets every pillar
15

Ampere. Anti-bacterial powder coated
Cold Roll Steel. 20 SWG

Suspended cabinet (WxDxH) =
RFTx18"x24"

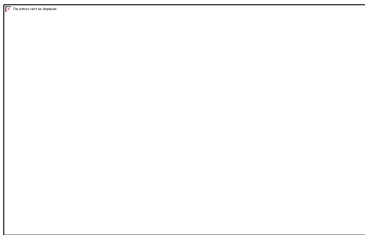
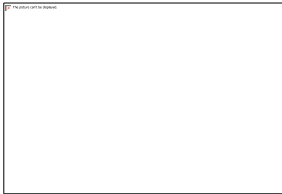
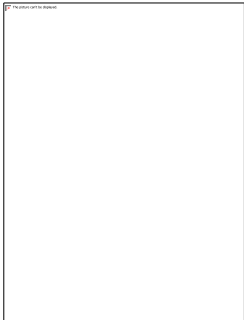
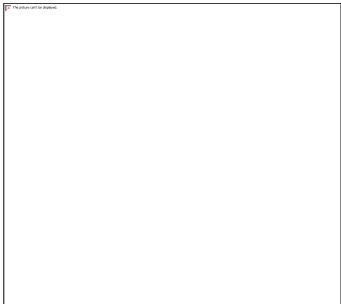
Two shelves in the cabinet



Cabinet material: Powder coated Mild steel/Stainless steel or equivalent

Locking system with each cabinet

Tabletop must be coupled with high quality sockets/plugs and long wire for electricity connections

3	BOOKS/ BAGS STORAGE SHELVES AND RACK SYSTEM	Wooden open shelf wreck Dimension: HxWxL (62"x14"x62") Color: Customized	4	
4	SITTING INDUSTRIAL STOOL	Specification: Base Material: Aluminum or better Metal Castor: Fixed Height: Adjustable, 250-700mm Seat Material: Rugged polyurethane round seat Color: Customized	120	
5	STORAGE CABINETS	Specification: Dimensions: 36"x 18" x 72" Characteristics: Anti-bacterial powder coated steel case work, cabinets are designed with four equal shelves. Each cabinet is furnished with complete hardware. High quality lock for doors, Hinges are imported load bearing material, Standard color is Customized. 20 SWG	20	
6	Office partition	Wooden (Diar) Frame, Tempered glass 8mm, HxL=6'x84'		
7	Instructor Table	Wooden Top: LxW (5'x3)	5	

Anti-bacterial powder coated steel frame structure, leveling glides on all legs.
Including 1.5"x1.5" fully welded Tubular Construction and Rectangular 1.5"x 1.5", 16 SWG.

Electric Connection with addition HDMI and USB ports

Note:

1. PAF-IAST may re-adjust the quantities within the total quantities specified against the specifications of same genre in any of the Lots.
2. The Bidder shall indicate in their offer,
 1. detailed specifications of their offered product(s),
 2. standard accessories,
 3. make and origin, as part of confirming Compliance as per the format given in Form – D.
3. The Unit Price, Total Bid Price, and Additional Warranty Price of the quoted items shall be indicated as per the given format in Form – G.

Standard

1. The goods supplied must be capable of functioning properly under the climatic conditions of Haripur.
2. There shall be no deviation from specification and country of make as provided with each item. In case of any ambiguity in specification/ accessories needed for the full functioning of the equipment, the firm must clear it with the Procurement Committee. However, the decision of the Procurement Committee will be final.
3. The goods with standard accessories supplied under this tender shall conform to the standard maintenance in the technical specification.
4. Visit to already installed and operational equipment if required as per Section 5, shall be provided within the time specified and unless otherwise specified by the Purchaser, at no expense to the Institute. The PAF-IASST may ask the bidders to carry out testing/analysis of samples (to be provided) to evaluate the performance of already installed and operational unit of similar specifications.

Training

5. The firm supplying the item/ equipment(s) will demonstrate the operation/ working of the supplied goods to the satisfaction of PAF- IASST and provide training. Suppliers are advised to provide details on formal training for the LOT(s) covering aspects as mentioned below, but not limited to, as required in Form – E (Section 3).

LOT(s)

1 to 11

Demonstrate the operations/ working to end users; Identify the do's and don'ts; and aspects deem necessary for long-life functioning of supplied goods.

Demonstrate technical features; Elaborate technical configuration(s) performed for integration with the overall setup; Documented guidelines for generating reports using software and/ or systems' interface

Provide trainings to Operators for troubleshooting and smooth operations using system manuals

6. The Bidder shall be responsible for all the necessary training programs available for the operation, maintenance and troubleshooting of the equipment at no additional cost to the institute. Unless otherwise specified, such training as well as training materials shall be provided in the language of the Bid as specified in the BDS.

Calibration of item/equipment

7. The supplier will install the good(s) in the presence and satisfaction of the Procurement Committee, if need be. In case of any defect in the supplied good(s) or if it is not in accordance with the desired specification(s), the goods will be changed at the cost of the supplier.

Warranty/ Guarantee

8. The Supplier will give comprehensive onsite warranty/ guarantee that the goods/ stores/ articles would continue to conform to the description and quality as specified for a period of at least One

(01) year and additional four (04) years as Extended Warranty from the date of delivery, installation and commissioning of the said goods/ stores/ articles to be purchased and that notwithstanding the fact that the purchaser may have inspected and/ or approved the said goods/ stores/ article, if during the aforesaid period, the said goods/ stores/ articles, be discovered not to conform to the description and quality aforesaid or have determined (and the decision of the Procurement Committee in that context will be final and conclusive), the PAF: IAST will be entitled to reject the said goods/ stores/ articles or such portion thereof as may be discovered not to conform to the said description and quality, on such rejection the goods/ articles/ stores will be at the supplier's risk and all the provisions relating to rejection of goods etc. shall apply.

9. The Supplier shall, if so called upon to do, replace the goods etc., or such portion thereof as is rejected by Procurement Committee, otherwise the supplier shall pay such damage as may arise by the reason of the breach of the condition herein contained. Nothing herein contained shall prejudice any other right of the Procurement Committee in that behalf under this contract or otherwise.
10. The Supplier shall also replace equipment, in case it is found defective which cannot be put to operation due to manufacturing defect, etc. In case of equipment specified by the Procurement Committee, the supplier shall be responsible from carrying out annual maintenance and repairs on the terms and conditions as may be agreed. The supplier shall also be responsible to ensure adequate regular supply of spare parts needed for a specific type of equipment whether under their annual maintenance and repairs contract or otherwise. In case of change of model, supplier will give sufficient notice to the Procurement Committee who may like to purchase spare parts from them to maintain the equipment in perfect condition.

Section 6: Returnable Bidding Forms / Checklist

This section serves as a checklist for preparation of your Bid. Please complete the Returnable Bidding Forms in accordance with the instructions in the forms and return them as part of your Bid submission. No alteration to format of forms shall be permitted and no substitution shall be accepted.

Before submitting your Bid, please ensure compliance with the Bid Submission instructions of the BDS 22.

Bid Proposal:

Have you duly completed all the Returnable Bidding Forms?	
✦ Form A: Bid Submission Form	<input type="checkbox"/>
✦ Form B: Joint Venture/Consortium/ Association Information Form	<input type="checkbox"/>
✦ Form C: Bidder Information Form	<input type="checkbox"/>
✦ Form D: Qualification Form	<input type="checkbox"/>
✦ Form E: Bid Proposal Form	<input type="checkbox"/>
✦ Form F: Specifications Compliance Form	<input type="checkbox"/>
✦ Form G: Price Schedule Form	<input type="checkbox"/>
Have you provided the required documents to establish compliance with the evaluation criteria in Section 4?	<input type="checkbox"/>

Form A: Bid Submission Form

(To be Submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

We, the undersigned, submit our Bid for the award of contract to supply the goods and related services required for [Insert Title of goods and services] in accordance with your Invitation to Bid No. [Insert ITB Reference Number]. We hereby submit our Bid, which includes this Bid proposal.

We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/ Consortium/ Association members or subcontractors or suppliers for any part of the contract:

1. is not under procurement prohibition by any of the Government/ Semi-government/ Autonomous organization;
2. have not been suspended, debarred, sanctioned or otherwise identified as ineligible by any Organization in Pakistan;
3. have not declared bankruptcy, are not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against us that could impair our operations in the foreseeable future;
4. undertake not to engage in proscribed practices, including but not limited to corruption, fraud, coercion, collusion, obstruction, or any other unethical practice, with the PAF: IAST, and to conduct business in a manner that averts any financial, operational, reputational or other undue risk to the PAF: IAST.

We declare that all the information and statements made in this Bid are true and we accept that any misinterpretation or misrepresentation contained in this Bid may lead to our disqualification and/ or sanctioning by the PAF-IAST.

We offer to supply the goods and related services in conformity with the Bidding documents, including the PAF-IAST General Conditions of Contract and in accordance with the Schedule of Requirements and Specifications.

Our Bid shall be valid and remain binding upon us for the period specified in the Bid Data Sheet.

We understand and recognize that you are not bound to accept any Bid you receive.

I, the undersigned, certify that I am duly authorized by [Insert Name of Bidder] to sign this Bid and bind it should PAF- IAST accept this Bid.

Name: _____

Title: _____

Date: _____

Signature: _____

[Stamp with official stamp of the Bidder]

Form B: Joint Venture/ Consortium/ Association Information Form

(To be Submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

To be completed and returned with your Bid if the Bid is submitted as a Joint Venture/Consortium/Association.

No	Name of Partner and contact information <i>(address, telephone numbers, fax numbers, e-mail address)</i>	Proposed proportion of responsibilities (in %) and type of goods and/or services to be performed
1	[Complete]	[Complete]
2	[Complete]	[Complete]
3	[Complete]	[Complete]

Name of leading partner (with authority to bind the JV, Consortium, Association during the ITB process and, in the event a Contract is awarded, during contract execution)	[Complete]
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We have attached a copy of the below referenced document signed by every partner, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture:

Letter of intent to form a joint venture **OR** JV/Consortium/Association agreement

We hereby confirm that if the contract is awarded, all parties of the Joint Venture/Consortium/Association shall be jointly and severally liable to PAF: IAST for the fulfillment of the provisions of the Contract.

Name of partner: _____

Name of partner: _____

Signature: _____

Signature: _____

Date: _____

Date: _____

Name of partner: _____

Name of partner: _____

Signature: _____

Signature: _____

Date: _____

Date: _____

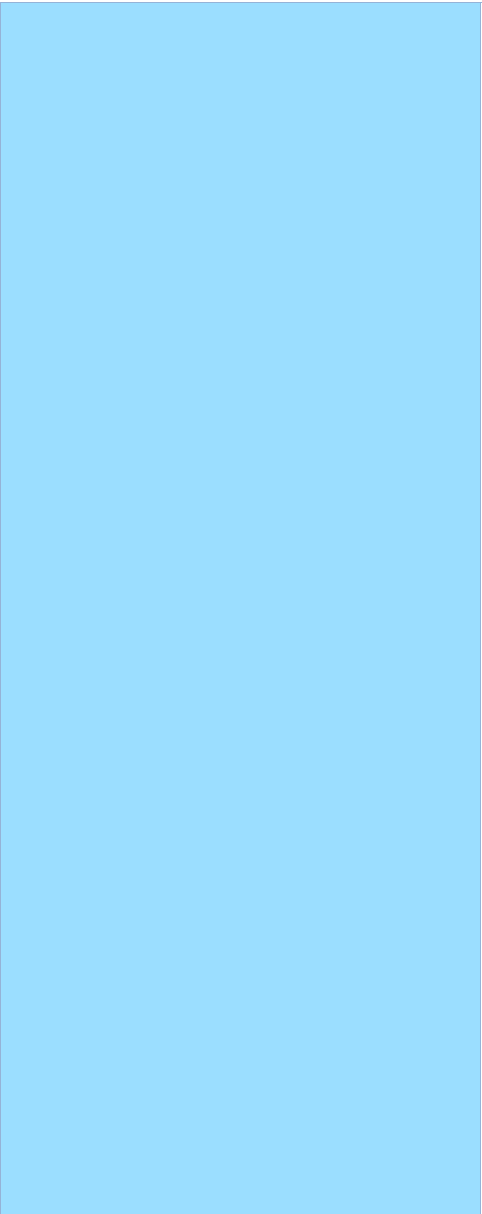
Form C: Bidder Information Form

(To be Submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

Legal name of Bidder	[Complete]
Legal address & Branch Offices	[Complete]
Year of registration	[Complete]
Bidder's Authorized Representative Information	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Are you a PAF: IAST registered vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, [insert PAF- IAST vendor number]
Countries of operation	[Complete]
No. of full-time employees	[Complete]
No. of Technical Staff	
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) (If yes, provide a Copy of the valid Certificate):	[Complete]
Does your Company hold any accreditation such as ISO 14001 or ISO 14064 or equivalent related to the environment? (If yes, provide a Copy of the valid Certificate):	[Complete]
Does your Company have a written Statement of its Environmental Policy? (If yes, provide a Copy)	[Complete]
Does your organization demonstrates significant commitment to sustainability through some other means, for example internal company policy documents on women empowerment, renewable energies, education, vocational trainings, social responsibility towards people	[Complete]

<p>with Special needs, or membership of trade institutions promoting such issues</p>	
<p>Contact person that PAF: IAST may contact for requests for clarifications during Bid evaluation (Only Lead Bidder)</p>	<p>Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]</p>
<p>Please attach the following documents:</p>	<ol style="list-style-type: none"> 1. Company Profile, which should not exceed fifteen (15) pages, including printed brochures and product catalogues relevant to the goods and/ or services being procured. 2. Proposed timetable for delivery, installation and commissioning plan for the required and quoted items to PAF: IAST after the award of Contract. 3. Certificate of Registration of the business. 4. Principal's Authorization Letter in favor of Bidder to participate in this Tender. 5. A proofing document confirms the offered warranty for at least One (01) year, supported by the manufacturer's certificates, if applicable. 6. A proofing document confirming supply of same or similar items of this magnitude to various clients/ customers in Pakistan. 7. Proven records of no less than the required Projects of similar nature/ value/ complexity in which delivery and services were extended. 8. Full detailed description of the specifications of the proposed items in addition to catalogues clearly showing the proposed specifications responding to the requirements.

- 
9. Supporting photos of the proposed items, if applicable.
 10. Quality certifications: ISO 9001:2015 (if applicable)
 11. Latest Audited Financial Statements (Income Statement and Balance Sheet) including Auditor's Report for the past (3 years).

Note: To be filled in by each partner in case Bid is submitted as a JV/ Consortium/ Association

Form D: Qualification Form

(To be submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

If JV/ Consortium/ Association, to be completed by each partner.

Previous Relevant Experience

Please list all Projects successfully completed in the last 3 years, covering following aspects;

1. Scope of the projects/ assignments.
2. Activities performed for the successful completion of the project.
3. Support Services Contracts in hand with SLA for the supplied goods.

List only those assignments for which the Bidder was legally contracted or sub-contracted by the Client as a company or was one of the Consortium/ JV partners. Assignments completed by the Bidder’s individual experts working privately or through other firms cannot be claimed as the relevant experience of the Bidder, or that of the Bidder’s partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. The Bidder should be prepared to substantiate the claimed experience by presenting copies of relevant documents and references if so requested by PAF- IAST.

Project name & Country of Assignment	Client & Reference Contact Details	Contract Value	Period of activity and status	Types of activities undertaken

Bidders may also attach their own Project Data Sheets with more details for assignments above.

History of Non-Performing Contracts

<input type="checkbox"/> Non-performing contracts did not occur during the last 3 years			
<input type="checkbox"/> Contract(s) not performed in the last 3 years			
Year	Non- performed portion of contract	Contract Identification	Total Contract Amount (current value in US\$)
		Name of Client: Address of Client: Reason(s) for non-performance:	

Financial Standing

Annual Turnover for the last 3 years	Year	PKR
	Year	PKR
	Year	PKR
Latest Credit Rating (if any), indicate the source		

Financial information (in PKR equivalent)	Historic information for the last 3 years		
	Year 1	Year 2	Year 3
	<i>Information from Balance Sheet</i>		
Total Assets (TA)			
Total Liabilities (TL)			
Current Assets (CA)			
Current Liabilities (CL)			
	<i>Information from Income Statement</i>		
Total / Gross Revenue (TR)			
Profits Before Taxes (PBT)			
Net Profit			
Current Ratio			

Attached are copies of the audited financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following condition:

1. Must reflect the financial situation of the Bidder or party to a JV, and not sister or parent companies;
2. Historic financial statements must be audited by a certified public accountant;
3. Historic financial statements must correspond to accounting periods already completed and audited. No statements for partial periods shall be accepted.

(To be submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

The Bidder’s Bid should be organized to follow this format of the Technical Bid Proposal. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. Where a descriptive response is requested, failure to provide the same may be viewed as non-responsive.

SECTION 1: Qualification, capacity and expertise

- 1.1 Bidder’s general organizational capability: management structure, financial stability and project financing capacity, project management controls, extent of work to be subcontracted (if so, provide details).
- 1.2 Bidder’s relevance of specialized knowledge and experience on similar engagements done in the region/ country. Bidder should submit a detailed description of the projects executed (quantities, value, beneficiary)
- 1.3 Manufacturer’s strengths covering the regional/ global market presence, hi-tech products portfolio, manufacturing capacity, R&D activities resulting in national and international patents, quality control and assurance practices, and international certifications in relevant areas.

SECTION 2: Management Structure and Key Personnel

- 2.1 Describe the overall management approach toward planning and implementing the project. Include an organization chart for the management of project describing relationship of key positions and designations.
- 2.2 Provide CVs for key personnel that will be provided to support the implementation of this project using the format below. CVs should demonstrate qualifications in areas relevant to scope of goods and/or services.

Format for CV of Proposed Key Personnel

Name of Personnel	[Insert]
Position	[Insert]
Nationality	[Insert]
Language proficiency	[Insert]
Education/ Qualifications	<i>[Summarize college/university and other specialized education of personnel member, giving names of schools, dates attended, and degrees/qualifications obtained.]</i>
	[Insert]
Professional certifications	<i>[Provide details of professional certifications relevant to the scope of goods and/or services]</i>
	1. Name of institution: [Insert] 2. Date of certification: [Insert]
Employment Record/	<i>[List all positions held by personnel (starting with present position, list in reverse order), giving dates, names of employing organization, title of position and location of employment.]</i>

Experience

[Insert]

I, the undersigned, certify that to the best of my knowledge and belief, the data provided above correctly describes my qualifications, my experiences, and other relevant information about myself.

Signature of Personnel

Date (Day/Month/Year)

SECTION 3: Scope of Supply, Technical Specifications and Training(s)

This section should demonstrate the Bidder's responsiveness to the specification by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements/specifications. All important aspects should be addressed in sufficient detail.

- 3.1 A detailed description of how the Bidder will deliver the required goods and services, keeping in mind the appropriateness to local conditions and project environment. Details how the different service elements shall be organized, controlled and delivered.
- 3.2 Explain whether any work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.
- 3.3 Implementation plan including a Gantt Chart or Project Schedule indicating the detailed sequence of activities that will be undertaken and their corresponding timing.
- 3.4 Details on post-deployment trainings on-site hands-on training for all LOTs.

SECTION 4: Registration & Certifications

This section should demonstrate the Bidder's responsiveness towards its registration with the relevant national body and international organizations Certifying the bidder's qualifications with respect to Quality and Project Management.

- 4.1 Provide a copy of valid registration with the Pakistan Engineering Council (if applicable).
- 4.2 Provide a copy of valid Certificate issued by International Organization for Standardization certifying the bidder's compliance and practices towards quality management principles and standards in their offered products/ solutions and services.
- 4.3 Provide a copy of valid Certificate issued by International Organization for Standardization certifying the bidder's compliance and practices towards information security management principles and standards in their offered products/ solutions and services.

SECTION 5: Warranty and Support Services

This section should demonstrate the Bidder's responsiveness to the post-commissioning warranty and support services of the goods supplied, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements. All important aspects should be addressed in sufficient detail.

- 5.1 A detailed description of how the Bidder will provide the Warranty claims to the users, keeping in mind the span and complexity of the project in context of local conditions and project environment.
- 5.2 Explain whether any services or work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.

5.3 Details how the post-delivery/ deployment Support Services will be provided to the users keeping in consideration the criticality of systems, and dependency of university administration and operations on such systems.

Form F: Specifications Compliance Form

(To be submitted in an envelope duly sealed and marked as Technical Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

The Bidder’s Bid should be organized to follow this format of the Technical Bid Proposal. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. Where a descriptive response is requested, failure to provide the same may be viewed as non-responsive.

Goods and services to be Supplied <i>(based on the Technical Specifications provided in Section 5a & Section 5b)</i>	Your response Compliance with specifications		
	Comply (Yes/ No) <i>(If No, indicate discrepancies)</i>	Quoted Specifications	Type/ Model no. & Country of Origin
Required Items	Offered Items		

Lot No. xx: <<Name>>

(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specification: provided in Section – 5)

Lot No. xx: <<Name>>

(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specification: provided in Section – 5)

Lot No. xx: <<Name>>.....

(Bidders are required to attach Compliance Comparison Sheet supported by Product Data Sheet against the Specification: provided in Section – 5)

Form G: Price Schedule Form

(To be Submitted in a separate and sealed envelope duly marked as Financial Proposal)

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	PAF: IAST-RLE-ME-ITB-112-21		

[The Bidder is required to prepare the Price Schedule following the below format. The Price Schedule must include a detailed cost breakdown of all goods and related services to be provided.]

We, the <<Name of Bidder>>, hereby submit our Financial Bid for the Supply of Items as below. We assure you of our full compliance to the required specifications, delivery schedule and other terms without any deviation and/ or reservations. We reiterate our acceptance to the terms and conditions of the RFP. Our Financial proposal as below is submitted for your kind consideration;

QUOTED PRICE IN PKR (DDP/FOR)

Quoted Items in compliance to the Technical Specifications as referred in Section – 5a and Section – 5b	Quantity (a)	Unit Price [in Rs.] (b)	GST [in Rs.] (c)	Total Price [in Rs.] d=a*[b+c]
Lot #1: <<Name>>				
<<Name of Equipment>>				
LOT #2: <<Name>>				
<<Name of Equipment>>				
LOT #3: <<Name>>				
<<Name of Equipment>>				
LOT #4: <<Name>>				
<<Name of Equipment>>				
Lot #5:<<Name>>				
<<Name of Equipment>>				
LOT #6: <<Name>>				
<<Name of Equipment>>				
LOT #7: <<Name>>				
<<Name of Equipment>>				
LOT #8: <<Name>>				
<<Name of Equipment>>				
Lot #9: <<Name>>				
<<Name of Equipment>>				
LOT #10:<<Name>>				
<<Name of Equipment>>				
LOT #11: <<Name>>				
<<Name of Equipment>>				
LOT #12: <<Name>>				
<<Name of Equipment>>				

QUOTED PRICE IN USD (CIF)

Quoted Items in compliance to the Technical Specifications as referred in Section – 5a and Section – 5b	Quantity (a)	Unit Price [in USD] (b)	Total Price [in USD] c=a*b
Lot #1:<<Name>>			

<<Name of Equipment>>			
LOT #2: <<Name>>			
<<Name of Equipment>>			
LOT #3: <<Name>>			
<<Name of Equipment>>			
LOT #4: <<Name>>			
<<Name of Equipment>>			
Lot #5:<<Name>>			
<<Name of Equipment>>			
LOT #6: <<Name>>			
<<Name of Equipment>>			
LOT #7: <<Name>>			
<<Name of Equipment>>			
LOT #8: <<Name>>			
<<Name of Equipment>>			
Lot #9:<<Name>>			
<<Name of Equipment>>			
LOT #10:<<Name>>			
<<Name of Equipment>>			
LOT #11: <<Name>>			
<<Name of Equipment>>			
LOT #12: <<Name>>			
<<Name of Equipment>>			

Extended Warranty Price (at sole discretion of PAF-IAST)

QUOTED PRICE IN PKR (DDP)

Annual Warranty & Support Services beyond Standard Warranty of the Quoted Items	2nd Year (in PKR)	3rd Year (in PKR)	4th Year (in PKR)	5th Year (in PKR)
Lot #1: <<Name>>				
<<Name of Equipment>>				
LOT #2: <<Name>>				
<<Name of Equipment>>				
LOT #3: <<Name>>				
<<Name of Equipment>>				
LOT #4: <<Name>>				
<<Name of Equipment>>				
Lot #5: <<Name>>				
<<Name of Equipment>>				
LOT #6: <<Name>>				
<<Name of Equipment>>				
LOT #7: <<Name>>				
<<Name of Equipment>>				
LOT #8: <<Name>>				

<<Name of Equipment>>				
Lot #9:<<Name>>				
<<Name of Equipment>>				
LOT #10:<<Name>>				
<<Name of Equipment>>				
LOT #11: <<Name>>				
<<Name of Equipment>>				
LOT #12: <<Name>>				
<<Name of Equipment>>				

QUOTED PRICE IN USD (CIF)

Annual Warranty & Support Services beyond Standard Warranty of the Quoted Items	2nd Year (in USD)	3rd Year (in USD)	4th Year (in USD)	5th Year (in USD)
Lot #1: <<Name>>				
<<Name of Equipment>>				
LOT #2: <<Name>>				
<<Name of Equipment>>				
LOT #3: <<Name>>				
<<Name of Equipment>>				
LOT #4: <<Name>>				
<<Name of Equipment>>				
Lot #5: <<Name>>				
<<Name of Equipment>>				
LOT #6: <<Name>>				
<<Name of Equipment>>				
LOT #7: <<Name>>				
<<Name of Equipment>>				
LOT #8: <<Name>>				
<<Name of Equipment>>				
Lot #9:<<Name>>				
<<Name of Equipment>>				
LOT #10:<<Name>>				
<<Name of Equipment>>				
LOT #11: <<Name>>				
<<Name of Equipment>>				
LOT #12: <<Name>>				
<<Name of Equipment>>				

Total Bid Value in Figures (including Extended Warranty Price): PKR _____

Total Bid Value in words (including Extended Warranty Price): PKR _____

Total Bid Value in Figures (including Extended Warranty Price): USD _____

Total Bid Value in words (including Extended Warranty Price): USD _____

Name & Designation of Authorized Person: _____

Signature: _____ (Please affix company stamp here)

Note: Quoted price must be inclusive of all taxes and duties.

The Bidders will be required to submit the below text on stamp paper after filling in the details and duly signed as well as stamped, as part of their Technical Proposal.

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC
PAYABLE BY THE SUPPLIER OF GOODS, SERVICES & WORK IN CONTRACTS WORTH
RS. 10.0 MILLION OR MORE

(To be filled by the bidder as a part of technical proposal)

Contract Number: _____

Dated: _____

Contract Value: _____

Contract Title: _____

_____ hereby declare that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business partner.

Without limiting the generality of the forgoing, _____ represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any nature or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultant fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatever from GoP, except that which has been expressly declared pursuant hereto.

_____ certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

_____ accept full responsibility and strict liability for making any false declaration, not making full discloser, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, _____ agrees to identify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by _____ as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever from GoP.

[Buyer]

[Seller / Supplier]

Annex – II: Draft Contract Sample

Available at PAF: IAST website at <http://www.paf-iastr.edu.pk/downloads>