

**Tender Document No.: 405012026-1**

**PROCUREMENT OF LAB EQUIPMENT FOR THE ESTABLISHMENT OF  
MAKERSPACE PUNJAB**

**EGOV - 24**



**Punjab Information Technology Board (PITB)**

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## Section-I: Invitation to Bids

### BIDDING DOCUMENTS FOR THE PROCUREMENT OF LAB EQUIPMENT FOR THE ESTABLISHMENT OF MAKERSPACE PUNJAB – EGOV-24

1. E-Bids on Lot basis are invited from Bidders i.e., firms/companies/sole proprietor/ general order Service Providers/ (JVs, if applicable) etc. engaged in trading, registered with relevant Registration Authorities and Tax Departments/ Authorities (Income Tax, Sales Tax & Punjab Sales Tax etc.). The bidders should submit E-bids against each Lot separately, as contracts will be awarded separately for each Lot. The E-bids shall be received as per single stage two envelope procedures.

LOT No.	Description	QTY	Estimated Total Cost	Bid Security (Fixed)
1	3D Printing Setup on Turnkey Basis	Multiple	21,000,000	420,000
2	Robotics Lab Setup on Turnkey Basis	Multiple	27,000,000	540,000
3	CNC Machines Setup (Lathe & Milling) on Turnkey Basis	Multiple	65,000,000	1,300,000
4	Fiber Laser Cutter Setup on Turnkey Basis	1	10,000,000	200,000
5	5-Axis Simultaneous CNC Machine Setup on Turnkey Basis	1	165,000,000	3,300,000
6	PCB Prototyping Setup on Turnkey Basis	Multiple	56,000,000	1,120,000
7	AR/VR Lab Setup on Turnkey Basis	Multiple	15,000,000	300,000

2. All E-bids must be accompanied by a Bid Security of the estimated price, as mentioned in the Table above, in the name of “Punjab Information Technology Board”, and in the form of CDR/Bank Guarantee / Demand Draft / Pay Order. Late E-bids shall be rejected.
3. **The complete E-bids must be submitted online on e-Procurement System (EPADS) website i.e., <https://punjab.eprocure.gov.pk> as per the following schedule:**

<b>Pre-Bid Meeting Date, Time &amp; Place</b>	<b>12 January, 2026 @ 11:00 AM</b> 11 <sup>th</sup> Floor, Arfa Software Technology Park (ASTP), 346-B, Ferozpur Road, Lahore.
<b>E-bid Submission Date &amp; Time</b>	<b>26 January, 2026 @ 11:00 AM</b>
<b>E-bid Opening Date &amp; Time</b>	<b>26 January, 2026 @ 11:30 AM</b>

4. **Original Bid Security Instrument must be submitted in an envelope clearly marked with the Bidding Document Number and Title, before the conclusion of Bid Opening session at:**

**Procurement Office**

**11<sup>th</sup> Floor, Arfa Software Technology Park (ASTP), 346-B, Ferozpur Road, Lahore.**

**Bidders are advised to ensure uploading the Bid on E-PADS Portal, well before the submission deadline, and not wait for the last date and time to upload the bid. Bid submission on E-PADS Portal shall entirely be the responsibility of the bidder. PITB shall not be held responsible for any issues thereof. For any assistance regarding E-PADS Portal, system support email and phone numbers are provided hereunder:**

5. Bidding Documents are immediately available after date of publication. Punjab Information Technology Board will not be responsible for any cost or expense incurred by Bidders in connection with the preparation or delivery of E-bids. In case of official holiday on the day of submission, next day will be treated as closing date. The Bidding document carrying all details can also be downloaded from Punjab Information Technology Board's website <https://pitb.gov.pk/tendernotices>, and website of Punjab Procurement Regulatory Authority <http://ppra.punjab.gov.pk>.
6. For electronic bids submission, bidders are requested to register at [www.punjab.eprocure.gov.pk](http://www.punjab.eprocure.gov.pk). For any queries regarding registration on EPADS please contact at: 1248.

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## **Section-II: Instructions to Bidders (ITB)**

**Note: - All the procurement procedures shall be conducted in accordance with Punjab Procurement Authority Act-2009 and Punjab Procurement Rules-2014. In case of any conflict between the provision of this document and PPRA Act-2009/ PPRA Rules-2014, the later shall prevail.**

### **2.1. Introduction**

**2.1.1 Scope of Bid** i) The Procuring Agency (PA), as indicated in the Bid Data Sheet (BDS) invites Bids for the provision of Goods as specified in the Section-IV Bid Data Sheet (BDS) and Section III - Technical Specifications & Section VII- Schedule of Requirements. The successful Bidders will be expected to deliver, install/ commissioning) the goods within the specified period and timeline(s) as stated in the BDS.

**2.1.2 Source of Funds** i) The Procuring Agency named in the Bid Data Sheet has received budget from the Government of Punjab. The Procuring Agency intends to apply the provided funds/ a portion of this budget to make eligible payments under the contract for which the Invitation to bids has been issued.

**2.1.3 Eligible Bidders** i) The Invitation to Bids is open to all suppliers i.e., association of firms/companies/sole proprietor/ general order suppliers / (JV, if applicable), registered with relevant Registration Authorities and Tax Departments/ Authorities (Income Tax, Sales Tax & Punjab Sales Tax etc.), and registered on e-Procurement System (EPADS), except as provided hereinafter.

ii) Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Procuring Agency to provide consultancy services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation to Bids [if applicable].

iii) Government-owned enterprises may participate only if they are duly/legally authorized in this regard by the respective/relevant competent forum/authority.

iv) Bidders shall not be under a declaration of blacklisting by the Procuring Agency.

v) In the case of a Joint Venture, Consortium, or Association, all members shall be jointly and severally liable for the execution

of the Contract in accordance with the terms and conditions of the Contract. The Joint Venture, Consortium, or Association shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture, consortium, or association during the Bidding process, and in case of award of contract, during the execution of contract.

*[It is upon procuring agency to decide the participation of Bidders in J.V mode. The limit on the number of members of JV or Consortium or Association and extent of their role shall be prescribed in BDS, in accordance with the guidelines issued by the PPRA].*

- vi) The appointment of Lead Member in the Joint Venture, Consortium, or Association shall be confirmed by submission of a valid JV or Consortium agreement to the Procuring Agency.
- vii) Any agreement that forms a Joint Venture, Consortium or Association shall be required to be submitted as part of the E-bid and shall be attested.
- viii) Any E-bid submitted by the Joint Venture, Consortium or Association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated or post qualified with respect to its contribution only and the responsibilities of each party and shall not be substantially altered without prior written approval of the Procuring Agency and in line with any instructions issued by the Authority.
- ix) The invitation for Bids is open to all prospective Supplier, Manufacturers or Authorized Agents/Dealers/Distributors subject to any provisions or licensing/regulatory requirements issued by the respective National/ Provincial Professional Statutory Body established for that particular trade or business as mentioned in bid data sheet.
- x) A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be non-Responsive. A Bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if they:
  - a) Are associated or have been associated for the procurement of the goods to be purchased under this Invitation for Bids, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Agency to provide consulting services for the preparation

of the design, specifications and other documents to be used.

- b) Have controlling shareholders in common; or
- c) Receive or have received any direct or indirect subsidy from any of them; or
- d) Have the same legal representative for purposes of this E-bid; or
- e) Have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Procuring Agency regarding this Bidding process; or

xii) A Bidder may be ineligible if –

- (a) The Bidder is declared bankrupt or, in the case of company or firm, insolvent;
- (b) Payments in favor of the Bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting, in accordance with the national laws, in the total or partial loss of the right to administer and dispose of its property;
- (c) Legal proceedings are established against such Bidder involving an order suspending payments and which may result, in accordance with the national laws, in a declaration of bankruptcy or in any other situation entailing the total or partial loss of the right to administer and dispose of the property;
- (d) The Bidder is convicted, by a final judgment, of any offence involving professional conduct;
- (e) The Bidder is debarred and blacklisted due to involvement in corrupt and fraudulent practices in accordance with the provision of section 17A of PPRA Act, 2009 and Rule-21, read with Schedule appended with, Punjab Procurement Rules, 2014.
- (f) The Bidder is debarred and blacklisted in general (i.e., to the extent of all public procurement) due to consistent performance failure in accordance with the section 17A

of PPRA Act, 2009 and Rule-21, read with Schedule appended with, Punjab Procurement Rules, 2014.

(g) The firm, supplier or contractor is blacklisted/ debarred by any international organization.

- xiii) Bidders shall provide to the Procuring Agency evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.
- xiv) Bidders shall provide such evidence of their continued eligibility satisfactory to the Procuring Agency, as the Procuring Agency shall reasonably request.
- xv) Bidders shall submit proposals relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract amounting to more than ten percent of the Bid price is envisaged.

**2.1.4. Eligible Goods and Services**

- i) All goods and related services to be supplied under the Contract shall have their origin in eligible source countries, defined in the *Bid Data Sheet (BDS/Technical Specification)*, and all expenditures made under the contract will be limited to such goods and related services.
- ii) For purposes of this clause, “origin” means the place where the goods are mined, grown, or produced, or the place from which the related services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially-recognized product is obtained that is substantially different in basic characteristics or in purpose or utility from its components.
- iii) The origin of goods and services is distinct from the nationality of the Bidder. *In any case, the requirements of Rules 10 & 26 of PPR-14, shall be followed.*

**2.1.5. Cost of Bidding**

- i) The Bidder shall bear all costs associated with the preparation and submission of its E-bid, and the Procuring Agency named in the Bid Data Sheet, hereinafter referred to as “the Procuring Agency,” will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

**2.1.6. One person one bid**

- i) As per Rule 36A of Punjab Procurement Rules 2014, a Bidder shall submit only one Bid in the same bidding process, either individually as a Bidder or as a member in a joint venture or any similar arrangement.

- ii) No Bidder can be a sub-contractor while submitting a Bid individually or as a member of a joint venture in the same Bidding process.
- iii) A Bidder, if acting in the capacity of sub-contractor in any Bid, shall not submit bid for the same.

## **2.2. The Bidding Documents**

### **2.2.1. Content of Bidding Documents**

- i) The goods required, Bidding procedures, and contract terms are prescribed in the Bidding documents. The Bidding documents, inter alia, include:
  - (a) Invitation to Bids
  - (b) Instructions to Bidders (ITB)
  - (c) Technical Specifications
  - (d) Bid Data Sheet
  - (e) General Conditions of Contract (GCC)
  - (f) Special Conditions of Contract (SCC)
  - (g) Schedule of Requirements
  - (h) Bid Form
  - (i) Manufacturer's Authorization Form
  - (j) Bidder Profile Form
  - (k) General Information Form
  - (l) Affidavit
  - (m) Bid Security Form
  - (n) Technical Bid Form
  - (o) Contract Form
  - (p) Financial Bid Form / Price Schedule
  - (q) Performance Guarantee Form
  - (r) Check List

- ii) The Bidder is required to examine all instructions, forms, terms, and specifications in the Bidding documents. Failure to furnish all information as required by the Bidding documents or to submit a Bid not responsive to the Bidding documents in every respect will be at the Bidder's risk and may result in the rejection of its Bid.
- iii) In case of discrepancies between the Invitation to Bid and the Bidding Documents listed in ITB 2.2.1 (i) above, the said Bidding Documents, not in conflict with any provision of PPR-14, will take precedence.
- iv) The Procuring Agency is not responsible for the completeness of the Bidding Documents and their addenda, if they were not obtained directly from the Procuring Agency or from its website or website of PPRA. Re-confirming from the Procuring Agency that all pages/ contents have been properly and clearly received is the prime responsibility of the Bidder.

**2.2.2. Clarification of Bidding Documents**

- i) A prospective Bidder requiring any clarification of the Bidding documents may notify the Procuring Agency in writing or by email at the Procuring Agency's address indicated in Invitation to Bid/ Tender Notice/ Advertisement or on the e-Procurement System (EPADS). The Procuring Agency will respond in writing to any request for clarification of the Bidding documents which it receives no later than **seven (07) days** prior to the deadline for the submission of Bids prescribed in the Bid Data Sheet. The Procuring Agency's response (including an explanation of the query but without identifying) will be uploaded on the e-Procurement System (EPADS) for clarity of bidders.
- ii) A prospective Bidder requiring any clarification of the Bidding Documents may notify the Procuring Agency through e-Procurement System (EPADS).
- iii) The Procuring Agency will within **three (03) working** days after receiving the request for clarification, respond in writing or in electronic form to any request for clarification provided that such request is received not later than **seven (07) days** prior to the deadline for the submission of Bids. As prescribed in ITB 2.2.2 (i), above. However, this clause shall not apply in case of alternate methods of Procurement.
- iv) Copies of the Procuring Agency's response will be uploaded on e-Procurement System (EPADS), including a description of the inquiry, but without identifying its source.

- v) Should the Procuring Agency deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB 2.2.3.
- vi) If indicated in the BDS, the Bidder's designated representative is invited at the Bidder's cost to attend a pre-Bid meeting at the place, date and time mentioned in the BDS. During this pre-Bid meeting, prospective Bidders may request clarification of the schedule of requirement, the Evaluation Criteria or any other aspects of the Bidding Documents.
- vii) Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be transmitted promptly to all prospective Bidders by uploading same on the e-Procurement System (EPADS). Any modification to the Bidding Documents that may become necessary as a result of the pre-Bid meeting shall be made by the Procuring Agency exclusively through the use of an Addendum pursuant to ITB 2.2.3. Non-attendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

**2.2.3. Amendment of Bidding Documents**

- i) At any time prior to the deadline for submission of Bids, but not later than three (3) days before the closing date of the submission of Bid, the Procuring Agency, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may modify the Bidding documents by amendment. Any such change/amendment in the Bidding documents shall be provided in a timely manner, through e-Procurement System (EPADS), not later than three (3) days, and on equal opportunity basis as per Rule-25(3) OR Rule 25(4) of PPR-14 as the case may be.
- ii) In order to allow prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Procuring Agency, at its discretion, may extend the deadline for the submission of Bids, as per rule 29 of PPR-14, in the manner similar to the original advertisements, so as to avoid any inconvenience and to doubly ensure level playing field for all prospective bidders.

**2.3. Preparation of Bids**

**2.3.1. Language of Bid**

- i) The Bid prepared by the Bidder, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Procuring Agency shall be written in the language specified in the Bid Data Sheet. Supporting documents and

printed literature furnished by the Bidder may be in same language.

#### **2.3.2. Bid Form**

- i) The Bidder shall complete the Bid Form and the appropriate Price Schedule (Financial Bid) furnished in the Bidding documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.

#### **2.3.3. Bid Prices**

- i) The Bidder shall indicate on form 8.10 the unit prices (where applicable) and total Bid price of the goods it proposes to supply under the contract.
- ii) Prices indicated on the Price Schedule shall be **item wise and lot wise**.
- iii) The Bidder's separation of price components in accordance with ITB Clause 2.3.3(ii) above will be solely for the purpose of facilitating the comparison of Bids by the Procuring Agency and will not in any way limit the Procuring Agency's right to contract on any of the terms offered.
- iv) Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account, unless otherwise specified in the Bid Data Sheet. A E-bid submitted with an adjustable price quotation will be treated as non-responsive and may be rejected.

#### **2.3.4. Bid Currencies**

- i) Prices shall be quoted in **Pak Rupees** unless otherwise specified in the Bid Data Sheet.

#### **2.3.5. Documents Establishing Bidder's Eligibility and Qualification**

- i) Pursuant to ITB Clause 2.1.3, the Bidder shall furnish, as part of its E-bid, documents establishing the Bidder's eligibility to Bid and its qualifications to perform the contract if its E-bid is accepted.
- ii) The documentary evidence of the Bidder's eligibility to Bid shall establish to the Procuring Agency's satisfaction that the Bidder, at the time of submission of its E-bid, is eligible as defined under ITB Clause 2.1.3.
- iii) The documentary evidence, of the Bidder's qualifications to perform the contract if its E-bid is accepted, shall establish to the Procuring Agency's satisfaction:
  - (a) that, in the case of a Bidder offering to supply goods / software under the contract which the Bidder did not

manufacture or otherwise produce, the Bidder has been duly authorized by the goods' Manufacturer [*Manufacturer's Authorization form No. 8.3*] or producer to supply/provide the same in Pakistan;

- (b) that the Bidder has the financial, technical, and production capability necessary to perform the contract;
- (c) that, in the case of a Bidder not doing business within Pakistan, the Bidder is or will be (if awarded the contract) represented by an Agent in that country equipped, and able to carry out the Supplier's maintenance, repair, spare parts-stocking, and subscription obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
- (d) that the Bidder meets the qualification criteria listed in the Bid Data Sheet.

**2.3.6. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents**

- i) Pursuant to ITB Clause 2.1.4, the Bidder shall furnish, as part of its E-bid, documents establishing the eligibility and conformity to the Bidding documents of all goods and related services which the Bidder proposes to supply under the contract.
- ii) The documentary evidence of the eligibility of the goods and services shall consist of a statement in the Price Schedule/Financial Bid Form of the country of origin of the goods and services offered which shall be confirmed by a Certificate of Origin issued at the time of shipment.
- iii) The documentary evidence of conformity of the goods and services to the Bidding documents may be in the form of literature, drawings, data and shall consist of:
  - (a) a detailed description of the essential technical and performance characteristics of the goods;
  - (b) a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period to be specified in the Bid Data Sheet, following commencement of the use of the goods by the Procuring Agency; and
  - (c) an item-by-item commentary on the Procuring Agency's Technical Specifications demonstrating responsiveness of the goods and services to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

- (d) Optional Bid/Quote is not allowed. The bidders must comply with the requirements mentioned in SECTION – III and submit their bid accordingly against each item.
- iv) For purposes of the commentary to be furnished, the Bidder shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Procuring Agency in its Technical Specifications, are intended to be descriptive only and not restrictive.
- v) Where a sample(s) is required by a procuring agency, the sample shall be:
- (a) submitted as part of the E-bid, in the quantities, dimensions and other details requested in the BDS;
  - (b) carriage paid;
  - (c) received on, or before, the closing time and date for the submission of E-bids; and
  - (d) Evaluated to determine compliance with all characteristics listed in the BDS.
- {However, the procuring agency may also opt to ask for samples after submission of technical bids (where required)}*
- vi) The Procuring Agency may retain the sample(s) of the successful Bidder till the successful delivery of the goods. A Procuring Agency may reject the E-bid if the sample(s)-
- (a) do(es) not conform to all characteristics prescribed in the bidding documents; and
  - (b) is/are not submitted within the specified time clearly mentioned in the Bid Data Sheet.
- vii) Where it is not possible to avoid using a propriety article as a sample, a Bidder shall make it clear that the propriety article is displayed only as an example of the type or quality of the goods being Bided for, and that competition shall not thereby be limited to the extent of that article only.
- viii) Samples made up from materials supplied by a Procuring Agency shall not be returned to a Bidder nor shall a Procuring Agency be liable for the cost of making them.
- ix) All samples produced from materials belonging to an unsuccessful Bidder may be kept by the Procuring Agency till **thirty (30) days** from the date of award of contract or exhaust of all the grievance forums (including those pending at Authority's Level or in some Court of Law).

- x) Pursuant to the requirements as indicated in ITB 2.3.6, the Bidder shall furnish, as part of its E-bid, all those documents establishing the eligibility in conformity to the terms and conditions specified in the Bidding Documents for all goods and related services which the Bidder proposes to deliver.
- xi) The Bidder shall also furnish a list giving full particulars, including available sources and current prices of goods, spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period specified in the BDS following commencement of the use of the goods by the Procuring Agency.
- xii) The required documents and other accompanying documents must be in English. In case any other language than English is used the pertinent translation attested by the embassy in country of manufacturer into English shall be attached to the original version.

### 2.3.7. Bid Security

- i) The Bidder shall furnish, as part of its E-bid, a Bid security in the amount specified in the Bid Data Sheet.
- ii) The Bid security is required to protect the Procuring Agency against the risk of Bidder's conduct which would warrant the security's forfeiture Pursuant to ITB Clause 2.3.7. (vii).
- iii) The Bid security shall be in Pakistan Rupees and shall be in one of the following forms:
  - (a) Bank Guarantee, Bank call-deposit (CDR), Demand Draft (DD), Pay Order (PO) or Banker's cheque valid for .....  
Thirty (30) Days, beyond the validity of Bid, or until furnishing of the Performance Security, whichever is later.**
- iv) Any E-bid not secured in accordance with ITB Clauses 2.3.8 (i) and (ii) may be rejected by the Procuring Agency as non-responsive.
- v) Unsuccessful Bidders' Bid security will be discharged or returned as promptly as possible but not later than .... **Thirty (30) days** after the expiration of the period of Bid validity prescribed by the Procuring Agency pursuant to ITB Clause 2.3.8 (ii) or along with unopened financial proposal as per rule 38(2)(a)(vii) of PPR-14, which shall take precedence, and is as under:

*“38(2)(a)(vii) the financial proposal of the Bids found technically non-responsive shall be retained unopened and shall be returned on the expiry of the grievance period or the decision*

*of the complaint, if any, filed by the non-responsive Bidder, whichever is later:*

*provided that the Procuring Agency may return the sealed financial proposal earlier if the disqualified or non-responsive Bidder, contractor or consultant submits an affidavit, through an authorized representative, to the effect that he is satisfied with the proceedings of the Procuring Agency”.*

- vi) The successful Bidder’s Bid security will be discharged upon the Bidder signing the contract, pursuant to ITB Clause 2.6.1, and furnishing the Performance Guarantee, pursuant to ITB Clause 2.6.2.
- vii) The Bid security may be forfeited:
  - a. If a Bidder withdraws its E-bid during the period of Bid validity specified by the Bidder on the Bid Form; or
  - b. In the case of a successful Bidder, if the Bidder:
    - i. Fails to sign the contract in accordance with ITB Clause 2.6.3; **or**
    - ii. Fails to furnish Performance Guarantee in accordance with ITB Clause 2.6.2; or
    - iii. If the blacklisting proceedings under Section-17A of PPRA Act, 2009 read with Rule-21 of PPR-14 are initiated and the bidder is declared blacklisted after due process of law.

**2.3.8. Period of Validity of Bids**

- i) Bids shall remain valid for the period specified in the Bid Data Sheet after the date of Bid opening prescribed by the Procuring Agency. A Bid valid for a shorter period may be rejected by the Procuring Agency as non-responsive.
- ii) In exceptional circumstances, the Procuring Agency may solicit the Bidder’s consent to an extension of the period of validity (as per rule-28 of PPR-14). The request and the responses thereto shall be made in writing (or by email / through e-Procurement System (EPADS)). The Bid security provided under ITB Clause 2.3.8 shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid security. A Bidder accepting the request will not be required nor permitted to modify its Bid.

### **2.3.9. Format and Signing of Bid**

- i) The Bidder shall prepare E-bid of the scanned documents in the form of PDF file and as per requirements in tender document.
- ii) The Bidder shall authorize a person/ persons for signing, submission and further correspondence with Procuring Agency on behalf of bidder. Authority letter must be part of E-bid. However, in case of any issue bidder shall be responsible for all consequences.
- iii) All scanned pages of the E-Bid, shall be signed and stamped by the authorized person before scanning.
- iv) Any interlineation, erasures, or overwriting shall be valid only if they are initialed by the authorized person for signing the E-Bid.
- v) The name and position held by each person signing the authorization must be typed or printed below the signature. All scanned pages of the E-Bid, shall be signed and stamped by the authorized person before scanning.
- vi) Any interlineations, erasures, or overwriting shall be valid only if they are signed by the person or persons signing the Bidder.
- vii) The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid and to contract execution if the Bidder is awarded the contract.

## **2.4. Submission of E-bids**

### **2.4.1 Sealing and Marking of Bids**

- i) N/A  
The complete Bids must be submitted online on e-Procurement System (EPADS) website i.e., <https://punjab.eprocure.gov.pk>

### **2.4.2 Deadline for Submission of E-bids**

- i) E-Bids must be submitted on the e-Procurement System (EPADS) no later than the time and date specified in the Bid Data Sheet. Physical Bids received through courier services or delivered by the bidder, shall not be accepted.
- ii) The Procuring Agency may, at its discretion and as per rule 29 of PPR-14, extend this deadline for the submission of Bids by amending the Bidding documents in accordance with ITB Clause 2.2.2 & 2.2.3 in which case all rights and obligations of the Procuring Agency and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

- iii) E-Bids must be submitted on the e-Procurement System (EPADS) no later than the date and time specified in the **BDS**.

#### **2.4.3. Late E-Bids**

- i) E-Bids will not be accepted on the e-Procurement System (EPADS), after closing time. However, if any E-bid is submitted on the system after closing time due to some technical glitch in the e-Procurement System (EPADS), in that case bid shall be declared late and rejected.
- ii) The Procuring Agency shall not consider for evaluation any Bid that is submitted after the deadline for submission of E-Bids.
- iii) Any Bid received by the Procuring Agency after the deadline for submission of E-Bids shall be declared late, recorded, rejected and returned unopened to the Bidder.

#### **2.4.4. Modification and Withdrawal of E-bids**

- i) No E-bid may be modified after the deadline for submission of E-bids.
- ii) No E-bid may be withdrawn in the interval between the deadline for submission of E-bids and the expiration of the period of Bid validity specified by the Bidder on the Bid Form. Withdrawal of a E-bid during this interval may result in the Bidder's forfeiture of its Bid security (along with other remedies available under PPR-14), pursuant to the ITB Clause 2.3.8 (vii).
- iii) A Bidder may withdraw its Bid after it has been submitted, provided that written notice of the withdrawal of the Bid, is received by the Procuring Agency prior to the deadline for submission of Bids.
- iv) Revised bid may be submitted after the withdrawal of the original bid before the deadline for submission of Bids.

### **2.5. Opening and Evaluation of E-Bids**

#### **2.5.1. Opening of E-bids by the Procuring Agency**

- i) The Procuring Agency will open all e-Bids, in public, in the presence of Bidders' or their representatives who choose to attend, and other parties with a legitimate interest in the Bid proceedings at the place, on the date and at the time, specified in the **BDS**. The Bidders' representatives present shall sign a register/attendance sheet as proof of their attendance.
- ii) E-Bids shall be opened on the e-Procurement System (EPADS) one at a time, in case of Single Stage One Envelope Procedure, the Bidders names, the Bid prices, the total amount of each E-Bid, the presence or absence of Bid Security, Bid Securing

Declaration and such other details as the Procuring Agency may consider appropriate, will be announced by the Procurement Evaluation Committee.

- iii) In case of Single Stage Two Envelope Procedure, the Procuring Agency will open on the e-Procurement System (EPADS) the Technical Proposals in public at the address, date and time specified in the **BDS** in the presence of Bidders' designated representatives who choose to attend and other parties with a legitimate interest in the Bid proceedings. The Financial Proposals will remain unopened on the e-Procurement System (EPADS) until the specified time of their opening.
- iv) Technical e-bids shall be opened one at a time, and the following read out and recorded: (a) the name of the Bidder; (b) the presence of a Bid Security, if required; and (c) Any other details as the Procuring Agency may consider appropriate.
- v) Bidders are advised to send in a representative with the knowledge of the content of the e-Bid who shall verify the information read out from the submitted documents. Failure to send a representative or to point out any un-read information by the sent Bidder's representative shall indemnify the Procuring Agency against any claim or failure to read out the correct information contained in the Bidder's e-Bid.
- vi) No e-Bid will be rejected at the time of Bid opening except for late Bids (if any, submitted on system due to technical glitch), pursuant to **2.4.3 (i)**.
- vii) The Procuring Agency shall prepare minutes of the Bid opening. The record of the Bid opening shall include, as a minimum: the name of the Bidder and whether or not there is a late bid, the Bid price if applicable.
- viii) The Bidders' representatives who are present shall be requested to sign on the attendance sheet. The omission of a Bidder's signature on the record shall not invalidate the contents and affect the record.
- ix) Minutes of the Financial Bid Opening shall be recorded and uploaded by the procuring agency on its website or shared to all bidders through on the e-Procurement System (EPADS).

*[if Procuring Agency opts for single stage one envelope procedure as per rule 38(1) of PPR-14, clause (vi) to (xiii) should be formulated accordingly by the procuring agency.]*

**2.5.2.  
Confidentiality**

- i) Information relating to the examination, clarification, evaluation and comparison of Bids and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with such process until the time of the announcement of the respective evaluation report in accordance with the requirements of rule 37 of PPR-14.
- ii) Any effort by a Bidder to influence the Procuring Agency processing of E-bids or award decisions may result in the rejection of its E-bid.
- iii) Notwithstanding **ITB Clause 2.2.2** from the time of Bid opening to the time of contract award, if any Bidder wishes to contact the Procuring Agency on any matter related to the Bidding process, it should do so in writing on e-Procurement System (EPADS).

**2.5.3. Clarification  
of E-bids**

- i) As per rule 33(2) of PPR-14, to assist in the examination, evaluation and comparison of e-Bids and post-qualification of the Bidders, the Procuring Agency may, at its discretion, ask any Bidder for a clarification of its e-Bid including breakdown of prices to determine its reasonability. Any clarification submitted by a Bidder that is not in response to a request by the Procuring Agency shall not be considered.
- ii) The request for clarification and the response shall be in writing or in electronic forms that provide record of the content of communication. In case of Single Stage Two Envelope Procedure, no change in the prices or substance of the Bid shall be sought, offered, or permitted. Whereas in case of Single Stage One Envelope Procedure, only the correction of arithmetic errors discovered by the Procuring Agency in the evaluation of Bids should be sought in accordance with ITB Clause 2.5.6.
- iii) The alteration or modification in The e-Bid which in any way affect the following parameters will be considered as a change in the substance of a bid:
  - a) Evaluation & qualification criteria;
  - b) Required scope of work or specifications;
  - c) All securities requirements;
  - d) Tax requirements;
  - e) Terms and conditions of bidding documents.
  - f) Change in the ranking of the Bidder
- iv) From the time of e-Bid opening to the time of Contract award if any Bidder wishes to contact the Procuring Agency on any

matter related to the Bid it should do so on the e-Procurement System (EPADS) in electronic forms that provide record of the content of communication.

#### **2.5.4. Preliminary Examination**

- i) The Procuring Agency will examine the E-Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.
- ii) Arithmetical errors will be rectified on the following basis: -
  - a. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If the Supplier does not accept the correction of the errors, its Bid may be rejected, and its Bid security may be forfeited.
  - b. If there is a discrepancy between words and figures, the amount in words will prevail.
- iii) Prior to the detailed evaluation, the Procuring Agency will determine the responsiveness of each Bid to the Bidding documents, pursuant to ITB Clause 2.5.5. For purposes of these Clauses, a responsive Bid is one which conforms to all the terms and conditions of the Bidding documents without material deviations. Deviations from, or objections or reservations to critical provisions, **such as** those concerning **Bid Security** (ITB Clause 2.3.8), **Applicable Law** (GCC Clause 30), **Taxes and Duties** (GCC Clause 32) & mandatory Registrations/ Renewals will be deemed to be a material deviation. The Procuring Agency's determination of a Bid's responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.
- iv) If a Bid is not responsive, it will be rejected by the Procuring Agency and may not subsequently be made responsive by the Bidder by correction of the non-conformity.
- v) Prior to the detailed evaluation of Bids, the Procuring Agency will determine whether each Bid:
  - a) Meets the eligibility criteria defined in **ITB 2.1.3** and **ITB 2.1.4**;
  - b) Has been prepared as per the format and contents defined by the Procuring Agency in the Bidding Documents;

- c) Has been properly signed;
- d) Is accompanied by the required securities; and
- e) Is responsive to the requirements of the Bidding Documents.

The Procuring Agency's determination of a Bid's responsiveness will be based on the contents of the Bid itself.

**2.5.5. Examination of Terms and Conditions; Technical Evaluation**

- i) The Procuring Agency shall examine the Bid to confirm that all terms and conditions specified in the **GCC** and the **SCC** have been accepted by the Bidder without any material deviation or reservation.
- ii) The Procuring Agency shall evaluate the technical aspects of the Bid submitted to confirm that all requirements specified in **Section III-Technical Specifications, Section VII – Schedule of Requirements, and Evaluation Criteria as provided in BDS,** have been met without material deviation or reservation.
- iii) If after the examination of the terms and conditions and the technical evaluation, the Procuring Agency determines that the Bid is not responsive in accordance, it shall reject the Bid.

**2.5.6. Correction of Errors**

- i) Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -
  - a) If there is a discrepancy between unit prices and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the Procuring Agency there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;
  - b) If there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and
  - c) Where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.
  - d) Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bid, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.
- ii) The amount stated in the Bid will, be adjusted by the Procuring Agency in accordance with the above procedure for the correction of errors. The concurrence of the Bidder shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, its Bid will then be rejected, and

the Bid Security may be forfeited or the Bid Securing Declaration may be executed in accordance with **ITB 2.3.8**.

**2.5.7. Conversion to Single Currency**

- i) As per rule 32(2) of PPR-14, to facilitate evaluation and comparison, the Procuring Agency will convert all Bid prices expressed in the amounts in various currencies as follows (if applicable):

For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate, prevailing on the date of opening of bids specified in the bidding documents, as notified by the State Bank of Pakistan on that day, in case of holiday in State Bank of Pakistan on the day of opening financial bids, then previous working day's ex-change rates will prevail.

**2.5.8. Post-Qualification & Evaluation of Bids**

- i) In the absence of prequalification, the Procuring Agency will determine to its satisfaction whether the Bidder is qualified to perform the contract satisfactorily, in accordance with the evaluation criteria listed in BDS & pursuant to ITB Clause 2.1.3.
- ii) The determination will take into account the Bidder's financial, technical, and production/ supplying capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 2.3.6, as well as such other information required for eligibility/qualification expressed in Bid Data Sheet as the Procuring Agency deems necessary and appropriate.
- iii) The Procuring Agency will **technically evaluate** and compare the Bids which have been determined to be responsive, pursuant to ITB Clause 2.5.5, as per Technical Specifications required.
- iv) The **financial evaluation** of a Bid will be on the basis of form of Price Schedules/ Financial Bid Form 8.10 to be decided by the Procuring Agency which must include clear cut instruction regarding item wise or lot wise evaluation inclusive of prevailing taxes, duties, fees etc.

**2.5.9. Contacting the Procuring Agency**

- i) Subject to ITB Clause 2.5.3, no Bidder shall contact the Procuring Agency on any matter relating to its e-Bid, from the time of the Bid opening to the time the evaluation report is made public i.e., **10 days before the contract is awarded**. If the Bidder wishes to bring additional information or has grievance to the notice of the Procuring Agency, it should do so on the e-Procurement System (EPADS).

- ii) Any effort by a Bidder to influence the Procuring Agency during Bid evaluation, or Bid comparison may result in the rejection of the Bidder's Bid.

**2.5.10. Grievance Redressal**

- i) As per Rule-67 of PPR-14, Procuring Agency shall constitute a Grievance Redressed Committee (GRC) comprising of odd number of persons with proper powers and authorization to address the complaints. The GRC shall not have any of the members of the Procurement Evaluation Committee. The Committee may preferably have one subject specialist depending upon the nature of the procurement in addition to one person with legal background as per their availability to the Procuring Agency.
- ii) Any Bidder feeling aggrieved can file its complaint to the procuring agency, against the eligibility parameters or any other terms and conditions prescribed in the Bidding documents found contrary to provision of Rule 33, and the same shall be addressed by the Procuring Agency well before the proposal submission deadline.
- iii) Any Bidder feeling aggrieved by any act of the Procuring Agency after the submission of his e-Bid may lodge a complaint to the procuring agency, concerning his grievances **not later than ten (10) days after the announcement of the Final evaluation reports**. In case of single stage - two envelope bidding procedure any bidder feeling aggrieved from technical evaluation may file a grievance **within five (05) days of announcement of the technical evaluation report**. After completion of the technical evaluation process, the procuring agency shall immediately upload the technical evaluation report on the website of PPRA and Procuring Agency for obtaining / receiving grievance petitions from the prospective bidders (if any).
- iv) In case, the complaint/grievance is filed after the issuance of the final evaluation report, the complainant cannot raise any objection on technical evaluation of the report. Provided that the complainant may raise the objection on any part of the final evaluation report in case where single stage one envelop bidding procedure is adopted.
- v) The GRC shall investigate and decide upon the complaint within **fifteen (15) days** of the receipt of the complaint. Mere fact of lodging of a complaint shall not warrant suspension of the procurement process.

## 2.6. Award of Contract

### 2.6.1. Notification of Award

- i) Prior to the expiration of the period of Bid validity, the Procuring Agency will notify the successful Bidder in writing by registered letter or through e-Procurement System (EPADS) that its e-Bid has been accepted.
- ii) The notification of award will constitute the formation of the Contract.
- iii) Upon the successful Bidder's furnishing of the Performance Guarantee pursuant to ITB Clause 2.6.2 (i), the Procuring Agency will promptly notify each unsuccessful Bidder and will discharge its Bid security, pursuant to ITB Clause 2.3.8 (v).

### 2.6.2. Performance Guarantee

- i) **Within fifteen (15) days of the issuance of notification of award / Letter of Intent (LOI)** from the Procuring Agency, the successful Bidder shall furnish the Performance Guarantee in accordance with the Conditions of Contract, in the Performance Guarantee Form provided in the Bidding documents, or in another form acceptable to the Procuring Agency.
- ii) Failure of the successful Bidder to comply with the requirement of ITB Clause (i) above or ITB Clause 2.6.3 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid security along with other remedies available under PPR-14. After that, the Procuring Agency may decide to may cancel the LOI and award the contract to the next lowest evaluated Bidder, keeping in view the Bid validity time, or call for new E-bids keeping in view the concept of value for money as defined under rule-2(ae) read with Principles of Procurement as enunciated in rule-4 of PPR-14.

### 2.6.3. Signing of Contract/ Issuance of Purchase Order

- i) At the same time as the Procuring Agency notifies the successful Bidder that its E-bid has been accepted, the Procuring Agency will send the Bidder the Contract Form provided in the Bidding documents, incorporating all agreements between the parties or will issue the purchase order *[as the case may be]*.
- ii) Under rule-63 of PPR-14, where the Procuring Agency requires formal signing of contract, **within fifteen (15) days of issuance of the notification of Contract award/Letter of Intent (LOI)**,

the successful Bidder shall sign and mention date of the contract and return it to the Procuring Agency.

- iii) Where no such formal signing is required by the procuring agency, the procuring agency shall issue purchase order after the receipt of required performance guarantee, as per rule 55 of PPR-14.

**2.6.4. Award Criteria**

- i) Subject to ITB Clause 2.6.2, under rule-55 of PPR-14, the Procuring Agency will award the contract to the successful Bidder whose E-bid has been determined to be responsive and has been determined to be the lowest evaluated E-bid, provided that the Bidder has been determined to be qualified to perform the contract satisfactorily.

**2.6.5. Procuring Agency's Right to Vary Quantities at Time of Award**

- i) The Procuring Agency reserves the right at the time of contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions, on the analogy of rule-59 (c)(iv) of PPR-14 (not more than 15%).

**2.6.6. Procuring Agency's Right to Accept or Reject All E-bids**

- i) As per rule 35 of PPR-14, the Procuring Agency reserves the right to accept or reject all E-bids or proposals (and to annul the E-bidding process) at any time prior to the acceptance of any E-bid or proposal, without thereby incurring any liability towards the Bidders.
- ii) The Bidders shall be promptly informed about the rejection of the E-bids, if any
- iii) The Procuring Agency shall upon request communicate to any Bidder, the grounds for its rejection of all E-bids or proposals, but shall not be required to justify those grounds.

**2.6.7. Re-Bidding**

- i) If the Procuring Agency rejects all the E-bids under rule 35, it may proceed with the process of fresh Bidding but before doing that it shall assess the reasons for rejection and may, if necessary, revise specifications, evaluation criteria or any other condition for Bidders.

**2.6.8. Corrupt or Fraudulent Practices**

- i) The Procuring Agency requires that Bidders, Service Providers, and Contractors observe the highest standard of ethics during the procurement and execution of contracts.

“Corrupt practices” in respect of procurement process, shall be as given in S-2 (d) of PPRA, Act, 2009, which is as follows:

*“(d) “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official, bidder or Contractor in the procurement process or in Contract execution to the detriment of the procuring agency; or misrepresentation of facts in order to influence a procurement process or the execution of a Contract, collusive practices among bidders (prior to or after E-bid submission) designed to establish bid prices at artificial, noncompetitive levels and to deprive the procuring agency of the benefits of free and open competition and any request for, or solicitation of anything of value by any public official in the course of the exercise of his duty; it may include any of the following:*

- i. coercive practice by impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence the actions of a party to achieve a wrongful gain or to cause a wrongful loss to another party;*
- ii. collusive practice by arrangement between two or more parties to the procurement process or Contract execution, designed to achieve with or without the knowledge of the procuring agency to establish prices at artificial, noncompetitive levels for any wrongful gain;*
- iii. offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the acts of another party for wrongful gain;*
- iv. any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;*
- v. obstructive practice by harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a Contract or deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements before investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or acts intended to materially impede the exercise of inspection and audit process.”*

**ii) Blacklisting & Debarment:**

Blacklisted Consultants and those found involved in “Corrupt Practices” are not allowed to participate in bidding.

**Substantial Requirements & Procedure for Blacklisting & Debarment:**

As per S-17A of PPRA, Act, 2009:

**“17A. Blacklisting.** – (1) A procuring agency may, for a specified period and in the prescribed manner, debar a bidder or Contractor from participating in any public procurement process of the procuring agency, if the bidder or Contractor indulges in corrupt practice or any other prescribed practice.

(2) The Managing Director may, in the prescribed manner, debar a bidder or Contractor from participating in any public procurement process of all or some of the procuring agencies for a specified period.

(3) Any person, aggrieved from a decision of a procuring agency, may within prescribed period prefer a representation before the Managing Director.

(4) A procuring agency or any other person, aggrieved from a decision of the Managing Director, may within prescribed period prefer a representation before the Chairperson whose decision on such representation shall be final.]

As per rule 21 of PPR-14:

**21. Blacklisting.** – (1) A procuring agency may, for a specified period, debar a bidder or Contractor from participating in any public procurement process of the procuring agency, if the bidder or Contractor has:

(a) acted in a manner detrimental to the public interest or good practices;

(b) consistently failed to perform his obligation under the Contract;

(c) not performed the Contract up to the mark; or

(d) indulged in any corrupt practice.

(2) If a procuring agency debars a bidder or Contractor under sub-rule (1), the procuring agency:

(a) shall forward the decision to the Authority for publication on the website of the Authority; and

(b) may request the Authority to debar the bidder or Contractor for procurement of all procuring agencies.

(3) The Managing Director may debar a bidder or Contractor of any procuring agency from participating in any public procurement

*process of all or some of the procuring agencies for such period as the Managing Director may determine.*

*(4) Any person aggrieved by a declaration made under rule 20 or a decision under sub-rule (1) of this rule may, within **thirty (30) days** from the date of the publication of the information on the website of the Authority, file a representation before the Managing Director and the Managing Director may pass such order on the representation as he may deem fit.*

*(5) Any person or procuring agency aggrieved by an order under sub-rule (3) or (4) may, within **thirty (30) days** of the order, file a representation before the Chairperson and the Chairperson may pass such order on the representation as he may deem appropriate.*

*(6) The mechanism or process for barring a bidder or Contractor from participating in procurement process of a procuring agency, procuring agencies and a representation under this rule is specified in the Schedule appended to these rules.*

*As per Schedule appended with PPR-14:*

#### **SCHEDULE**

*see sub-rule (6) of rule 21*

#### **BLACKLISTING MECHANISM OR PROCESS**

- 1. The procuring agency may, on information received from any resource, issue show cause notice to a bidder or Contractor.*
- 2. The show cause notice shall contain:
  - (a) precise allegation, against the bidder or Contractor;*
  - (b) the maximum period for which the procuring agency proposes to debar the bidder or Contractor from participating in any public procurement of the procuring agency; and*
  - (c) the statement, if needed, about the intention of the procuring agency to make a request to the Authority for debarring the bidder or Contractor from participating in public procurements of all the procuring agencies.**
- 3. The procuring agency shall give minimum of **seven (07) days** to the bidder or Contractor for submission of written reply of the show cause notice.*
- 4. In case, the bidder or Contractor fails to submit written reply within the requisite time, the procuring agency may issue notice for personal hearing to the bidder or Contractor/ authorize representative of the bidder or Contractor and the procuring agency shall decide the matter on the basis of available record and personal hearing, if availed.*
- 5. In case the bidder or Contractor submits written reply of the show cause notice, the procuring agency may decide to file the*

*matter or direct issuance of a notice to the bidder or Contractor for personal hearing.*

6. *The procuring agency shall give minimum of **seven (07) days** to the bidder or Contractor for appearance before the specified officer of the procuring agency for personal hearing.*
7. *The procuring agency shall decide the matter on the basis of the available record and personal hearing of the bidder or Contractor, if availed.*
8. *The procuring agency shall decide the matter within **fifteen (15) days** from the date of personal hearing unless the personal hearing is adjourned to a next date and in such an eventuality, the period of personal hearing shall be reckoned from the last date of personal hearing.*
9. *The procuring agency shall communicate to the bidder or Contractor the order of debarring the bidder or Contractor from participating in any public procurement with a statement that the bidder or Contractor may, within **thirty (30) days**, prefer a representation against the order before the Managing Director of the Authority.*
10. *The procuring agency shall, as soon as possible, communicate the order of blacklisting to the Authority with the request to upload the information on its website.*
11. *If the procuring agency wants the Authority to debar the bidder or Contractor from participating in any public procurement of all procuring agencies, the procuring agency shall specify reasons for such dispensation.*
12. *The Authority shall immediately publish the information and decision of blacklisting on its website.*
13. *In case of request of a procuring agency under para 11 or representation of any aggrieved person under rule 21, the Managing Director shall issue a notice for personal hearing to the parties and call for record of proceedings of blacklisting. The parties may file written statements and documents in support of their contentions.*
14. *In case of representation of any aggrieved person or procuring agency under rule 21, the Chairperson shall issue a notice for personal hearing to the parties and may call for the record of the proceedings. The parties may file written statements and documents in support of their contentions.*
15. *In every order of blacklisting under rule 21, the procuring agency shall record reasons of blacklisting and also reasons for short, long or medium period of blacklisting.*
16. *The Authority shall upload all the decisions under rule 21, available with it, on its website. But the name of a bidder or*

*Contractor shall immediately be removed from the list of blacklisted persons on expiry of period of blacklisting or order of the competent authority to that effect, whichever is earlier.*

17. *An effort shall be made for electronic communication of all the notices and other documents pursuant to this mechanism or process.”*

iii) Furthermore, Bidders must keep themselves aware of the provision stated in clause 5.4 and clause 24.1 of the General Conditions of Contract.

**2.6.9. Quantity and volume of the goods to be considered in mind**

*[Framework Contract Modality]*

- i) While quoting the rate in a framework contract, the Bidder must consider the following facts:
  - a. Certain volume and quantity of the goods as prescribed in Bid Data Sheet.
  - b. The Bidder have to maintain the rates of the goods for the whole financial year.
  - c. The Bidder should quote the rate as per Price Schedule/ Financial Bid form. In case of non-observance of prescribed format, Financial Bid may be rejected.

## Section-III. Technical Specifications

### 3.1. Technical Specifications

*Any brand names / model mentioned in the technical specifications of goods / services being solicited through this bidding document, are for reference only and the bidders may quote the any brand / model with equivalent specifications.*

LOT No.1: 3D Printing Setup on Turnkey Basis		
Sr. No.	Item	Specification
1	FDM 3D Printer (QTY: 4)	Printing Technology: Fused deposition modelling, Build Volume: 220*220*240mm, Typical Printing Speed: 300mm/s, Max. Printing Speed: 500mm/s (Test with Hyper PLA), Max. Acceleration: 8000mm/s <sup>2</sup> , Printing Accuracy: ±0.1mm, Layer Height:0.1-0.35mm, Filament Diameter: 1.75mm, Nozzle Diameter: 0.4mm (default), Nozzle Temperature: ≤300°C, Heat bed Temperature: ≤100°C, Build Surface: PEI flexible build plate, File Transfer: USB drive, LAN, Cloud App, Extruder: Upgraded “Sprite” direct drive extrusion, Levelling Mode: Hands-free auto levelling, Display Screen: 4.3” color touch screen, Mainboard: 32-bit silent mainboard, Printable File Format: G-code, Power Loss Recovery: Yes, Filament Runout Sensor : Yes, Rated Voltage: 100-120V~, 200-240V~, 50/60Hz, Rated Power: 350W, Slicing Software: Cura, Simplify3D, Creality Print or equivalent, Formats for Slicing: STL, OBJ, 3MF, AMF, Supported Filaments: PLA, PETG, ABS, TPU(95A), ASA, UI Languages: English
2	FDM 3D Printer (QTY: 2)	Printing Technology Fused Deposition Modelling, Build Volume: 400 × 400 × 400 mm, Printing Speed: ≤ 700 mm/s, Acceleration: ≤ 20000 mm/s <sup>2</sup> , Printing Accuracy: 100±0.1 mm, Layer Height: 0.05-0.3 mm, Extruder: Direct drive extruder, Filament Diameter: 1.75 mm, Nozzle Diameter: 0.4 mm (compatible with 0.6/0.8 mm nozzle), Nozzle Temperature: ≤ 300 °C, Heatbed Temperature: ≤ 100 °C, Build Plate: Epoxy flexible build plate, Leveling Mode: 64-point auto leveling, File Transfer: USB drive/Wi-Fi, Display Screen, Power Loss Recovery: Yes, Filament Runout Sensor: Yes, Input

LOT No.1: 3D Printing Setup on Turnkey Basis		
Sr. No.	Item	Specification
		Shaping: Yes, Lighting Kit: Yes, Sleep Mode: Yes, Rated Voltage: 100-240V~AC 50/60 Hz, Operating Temperature: 5 – 40 °C, Supported Filaments: Hyper PLA/PLA/PETG/TPU95A/ABS/ASA/PLA-CF/PA/PLA-Silk, Printable File Format: G-code, Slicing Software: Yes, File Formats for Slicing: STL, OBJ, 3MF, UI Languages: English and App for Cloud Printing
3	FDM Multicolor 3D Printer (QTY: 2)	Build Volume (WxDxH) 256 × 256 × 256 mm <sup>3</sup> , Nozzle 0.4 mm, Hardened Steel Included, Hot end All-Metal, Max Hot End Temperature 300 °C, Filament Diameter 1.75 mm, Supported Filament PLA, PETG, TPU, ABS, ASA, PVA, PET, Ideal for PA, PC, Carbon/ Glass Fiber Reinforced Polymer, Build Plate Surface Bambu Cool Plate or equivalent, Bambu Engineering Plate or equivalent Included, Max Build Plate Temperature 110°C @220V, 120°C@110V, Max Speed of Tool Head 500 mm/s, Max Acceleration of Tool Head 20 m/s <sup>2</sup> , Electrical Requirements 100-240 VAC, 50/60 H, 1000W @ 220V, 350W @110V
4	FDM Multicolor 3D Printer (QTY: 1)	Printing Technology: Fused Deposition Modeling, Build Volume: 350 × 350 × 350 mm, Rated Voltage: 100-240V~ AC 50/60Hz, Combo Dimensions: 495 × 515 × 916mm, Rated Power: 1200W, Supported Filaments: PLA/ABS/PETG/PA-CF/PLA-CF/PET/ ASA /PPA- CF, Printing Speed: ≤ 600 mm/s, AI Camera for Monitoring: Standard, Acceleration: ≤ 30000 mm/s <sup>2</sup> , AI Camera for Calibration: Standard, Printing Accuracy: 100±0.1 mm, Power Loss Recovery: Yes, Layer Height: 0.05-0.3 mm, Auto Filament Relay: Yes, Extruder: Dual-gear direct drive extruder: Filament Tangle Detection: Yes, Filament Diameter: 1.75 mm, Air Purifier: Yes, Nozzle Diameter: 0.4 mm, Input Shaping: Yes, Nozzle Temperature: ≤ 350 °C, Lighting kit: Yes, Heatbed Temperature: ≤ 120 °C, Active Bed Tilt Calibration: Yes, Chamber Temperature: 60 °C, Active Belt Tensioning: Yes, Build Plate: Flexible build plate, Active Chamber Heater: Yes, Leveling Mode: Full-auto Leveling, XYZE Motor: Servo-step motor, Printable File Format: G-code/3MF, File Transfer: USB Drive/Ethernet/WiFi, CFS Compatibility: Yes, File Storage: 32GB EMMC, Number of CFS Extensions: ≤ 4, Wifi: 2.4 GHz/5 GHz, Slicing Software: Creality Print 5.0 or newer versions/equivalent, RFID Sensor in Printer, Included, UI Languages: English

LOT No.1: 3D Printing Setup on Turnkey Basis		
Sr. No.	Item	Specification
5	FDM 3D Printer (QTY: 1)	Printing Technology: FDM (Fused Deposition Modeling), Voltage 220-240V, File Transfer Method: USB, LAN, WIFI, File Format: STL, OBJ, UI Language: English, Build Volume: 800 x 800 x 1000 mm <sup>3</sup> , Printing Platform Size (PEI Area): 820 x 820 mm <sup>2</sup> (4 independent 410 x 410 mm <sup>2</sup> PEI plates), Package Size: Bottom + XY Axis Components: 1350 x 1215 x 420 mm <sup>3</sup> , Two Z-Axis Components: 1350 x 1215 x 350 mm <sup>3</sup> , MAXIMUM SIZE FOR MACHINE ACTIVITY/MM: 1224 x 1520 x 1570, Max. Nozzle Temperature: 300°C, Max. Hot bed Temperature: 100°C (ambient temperature: 25°C), Filament Compatibility: PLA / PETG / TPU / Nylon, Net Resume Printing: Yes, Filament Detection: Yes, Max Speed of Tool Head: 300 mm/s, Max Acceleration of Tool Head: 5,000 mm/s <sup>2</sup>
6	MSLA 3D Printer (QTY: 2)	Print Volume: 22.3 x 12.6 x 23.5 cm ,Slicer Software: CHITUBOX V1.9.6 and above (or others), Compatible File Format: .CTB, .PRZ, Connectivity: USB   Wi-Fi, Built-in Memory: 8.0 GB, Design: Technology Resin 3D Printer - LCD Type, Light Source: Linear Projection LED Module, XY Resolution: 16.8 x 24.8 µm, Layer Thickness: 0.01-0.30 mm, Avg. Printing Speed: 450 layer/hr, Power Requirement: AC100–240V ; 50–60Hz, System Power: Max 240 W, Release Film: nFEP Film,
7	MSLA 3D Printer (QTY: 1)	Print Volume: 33 x 18.5 x 30 cm , Slicer Software: CHITUBOX V1.9.6 or above, Connectivity: Front USB Port, Design: Technology Resin 3D Printer - LCD Type, Light Source: 405nm ParaLED Matrix 2.0, Release Film: ACF Film, XY Resolution: 43 µm, Layer Thickness: 0.01-0.30 mm, Average Printing Speed: 400 layers/hr, Power Requirement: AC100-240V ; 50-60Hz, System Power: Max 240 W, Printer Size: 47.2 x 38 x 56.6 cm,
8	3-IN-1 3D Printer (QTY: 1)	Standard 3D Printing Module: Dual Extrusion, Standard Laser Module: 40W (with Air Assist), Max. Depth of One-pass Laser Cutting: 15mm Basswood Plywood, Standard CNC Module: 200 W, Spindle Speed: 18,000 RPM, Max. Work Speed: 50 mm/s (Beech); 33 mm/s (Acrylic), Maximum Stepdown: 2 mm (Beech); 1 mm (Acrylic), Shank Diameter: 0.5 mm–6.35 mm Touchscreen Display: 7 inch min, Cooling Fan: Boosted Exhaust Fan, Machine Dimensions (W x D x H): 580 mm x 620 mm x 634 mm, Enclosure Dimensions (W x D x H): 665 mm x 943 mm x 705 mm, Laser Type: 450 nm –

LOT No.1: 3D Printing Setup on Turnkey Basis		
Sr. No.	Item	Specification
		460 nm Semi-conductor, Nozzle Diameter: 0.4 mm, Nozzle Material: Brass, Max. Nozzle Temperature: 300°C, Max. Recommended Printing Speed: 180 mm/s, Build Plate: Double-sided PEI-coated Glass, High-temperature Zone (Inner Zone): 260 mm × 260 mm, Max. Heated Bed Temperature (Inner Zone): 110°C, Max. Heated Bed Temperature (Outer Zone): 80°C, Supported Materials: PLA, ABS, ASA, PETG, TPU (with hardness ≥ 90 Shore A), Breakaway Support for PLA, PVA, HIPS, and Nylon, Carbon Fiber Reinforced Nylon and Glass Fiber Reinforced Nylon (The Hardened 0.4mm Hot Ends are required), Supported Formats: stl, obj
9	Wash and Cure Station (QTY:1)	Maximum Curing Volume: 3.18L, Maximum Cleaning Volume: 165*100*180 mm, Cleaning Method: Alcohol Soaking, Time Setting Range: 1–30 mins, Cleaning Basket Capacity: 3L, UV Light Configuration: 10pcs*405nm LEDs + Gooseneck Light, Power Supply: 36W, Control Interface: Touch Buttons
10	Wash and Cure Plus Station (QTY:1)	Maximum Curing Volume: 9L, Maximum Cleaning Volume: 230*140*260mm, Cleaning Method: Alcohol Soaking, Time Setting Range: 1–30 mins, Cleaning Basket Capacity: 7.6L, UV Light Configuration: 10pcs*405nm LEDs + Gooseneck Light, Power Supply: 36W, Control Interface: Touch Buttons + Rotary Knob,
11	Filament Dryer (QTY: 1)	Housing Material: ABS/PA/PC, size: 382*290*270mm, Flame Retardant Grade: UL 94 V-0, Temperature Range: 45-85°C, Product net weight: 5kg, Drying Time: 1-48h, Rated power: 360W, Input Voltage: UK/GB/EUR/AUS/BRA/CHL/ARG 220-240V~50/60Hz, Applicable Filament: Spool Diameter ≤ 200mm, width ≤ 150mm, wire diameter:1.75/2.85mm
12	Vacuum Forming Machine	A3-size sheet support (420×297 mm), Automatic heating up to 190°C, Powerful built-in vacuum pump, Industrial metal structure, Plug-and-play — no external hardware needed, Supports PETG, HIPS, ABS & more, Power Supply: 200–230V / 100–120V, Max Output: 1600W, Max Temperature: 190°C, Film Size: A3 (420 × 297 mm / 16.52" × 11.69"), Max Film Thickness: 1.5 mm (some films up to 2 mm), Supported Films: PETG, HIPS, ABS, etc., Maximum Model Size (Convex) Width: 260 mm, Length: 380 mm, Height: 100 mm & Maximum Model Size (Concave) Width: 240 mm, Length: 360 mm, Height: 100 mm

LOT No.1: 3D Printing Setup on Turnkey Basis		
Sr. No.	Item	Specification
13	Desktop PC's (QTY: 2)	<p><b>For 3D Scanning:</b> Intel core i9 Processor, Nvidia 5060 Graphics Card, MSI PRO DDR 5 Motherboard, 27inch FHD Monitor, 850 Watt Power Supply, SSD 1TB M.2 x 2, HDD 2TB x 1, DDR 5 32 GB, PRO Grade Casing</p> <p><b>For 3D Printing Designing:</b> Intel core i7 Processor, NVIDIA 3050 Graphics Card, MSI PRO DDR 4 Motherboard, 27inch FHD Monitor, 600 Watt Power Supply, SSD 1TB M.2 x 1, HDD 2TB x 1, DDR 5 32 GB, PRO Grade Casing</p>
14	Hand Held Scanner (QTY: 1)	<p>Scan Mode: Structured Light Scan, Point Distance : 0.1 mm ~ 3 mm, Light Source : Infrared VCSEL structured light, Working Distance: Effective Working Distance: 160mm-1400mm, Optimal Working Distance: 400m, Depth of Field : 160-1400mm, Maximum FOV : 434mm*379mm (under optimal work distance), Scan Speed : 980,000points/s, up to 14FPS, Align Modes Feature Alignment, Hybrid Alignment, Texture Alignment, Global Markers, Safety: Eye-safe, Texture Scan: Yes, Interface : USB2.0 or above, Outdoor Scanning: Yes, Output Formats: OBJ; STL; PLY; P3; 3MF, Operating Temperature Range : 0-40°C, Operating Humidity Range : 10-90%, Recommended Configuration : OS:Win10/11, 64 bit; Graphics card: NVIDIA GTX1050; Video memory: ≥6GB; Processor: I7-11800H; Memory: ≥32GB</p>
15	Desktop 3D Scanner (QTY: 1)	<p>Scan Models: Manual; Geometry; Turntable; Markers; Markers + Turntable, Accuracy: ≤0.05 mm, Resolution: 0.17 mm, Scanning Speed (per frame): &lt; 1s, Scanning Speed (complete scan): &lt;45s, Minimum Scan Volume: 30x30x30 mm, Scanning Volume (without turntable): 1200x1200x1200 mm, Scanning Volume (with turntable): 200x200x200 mm, Color Acquisition: Yes, Camera Resolution: 1.3 MP, Working Distance: 290mm – 480 mm,</p>
16	3D PLA Tough filament (QTY: 50)	<p>1 KG roll, no clogging, no bubbles, 1.75mm wire diameter, 8 kinds of solid colors, sprinkler temperature: 190~220°C, Melting Temp: 150 ~ 180° C</p>
17	3D ABS filament (QTY: 20)	<p>1 kg, DÍA 1.75mm, Tensile strength: ≥43MPa, Flexural Strength ≥70MPa, Flexural Modulus: ≥2300MPa</p>

<b>LOT No.1: 3D Printing Setup on Turnkey Basis</b>		
<b>Sr. No.</b>	<b>Item</b>	<b>Specification</b>
18	3D ASA filament (QTY: 5)	1 kg, High UV Resistance, Heat & Weather Resistant, Print Temperature Range: 230°C-260°C; Bed: 90°C, Speed 30-60mm/s
19	3D PETG filament (QTY: 20)	1 Kg, 1.75mm ±0.03mm, 30-600MM/S PRINTING SPEED,
20	TPU 3D Printing filament (QTY: 10)	1 kg, 95A Shore Hardness, Print Temp: 205-230°C, Bed temp: 45-60°C, Print Speed: 20-40MM/s, TPU Filament 1.75mm+/-0.02mm,
21	Water washable standard resin (QTY: 15)	1 kg, Low viscosity 70-175 mPa·s, work with top down resin printer, 385-405 nm range
22	ABS like Pro Resin (QTY: 8)	1 kg, UV wavelength: 365-405 nm, longation at break: 35-40%, Density: 1.05-1.25 g/cm <sup>3</sup> , Molding shrinkage: 4.3-5.6%, Viscosity: 300-400 mPa·s, Flexural strength: 40-45 MPa, Flexural modulus: 1400-1800 MPa, Hardness: 82-84 HD, Tensile strength: 35-45 MPa, Young modulus: 1600-1800 MPa Bottom exposure time: 20-40 s, Normal exposure time: 1.5-3 s Heat deflection temp: 60-65 °C, Resin wash: Alcohol
23	Flexible Resin (QTY: 3)	250 gram, flexibility with little elasticity,
24	High temperature resistant resin (QTY: 3)	250 gram, heat resistance up to 220°C, without deformation under 2 hours
25	Dental Cast able Resin (QTY: 3)	250 gram, Hardness (Shore D): 78D - 85DTensile Strength: 19 - 25 MPa, Tensile Modulus: 630 MPa, Flexural Strength: 45 - 58 MPa, Impact Strength: 44 - 134 J/m, Elongation at Break: 10 - 20% , Density: 1.01 - 1.25 g/cm <sup>3</sup> , Viscosity: 50 - 100 cP, Shrinkage: <0.5% - 2.07%, Glass Transition Temperature: 20 - 30°C
26	Engineering Art Resin (QTY: 3)	1kg, Hardness (Shore D): 80-88, Tensile Strength: 38.36 MPa ±10%, Elongation at Break: 35.44% ±10%, Flexural Strength: 44.15 MPa ±10%, Impact Resistance (Notched): 460 J/m, Viscosity: 350-650 mPa·s, Density: 1.05-1.25 g/cm <sup>3</sup> , Curing Wavelength: 385-405 nm
27	Warranty	Standard 01 Year Warranty for Items at Sr. No. 1 to 15 above
28	Extended Warranty	Extended Warranty for 02 additional years for Items at Sr. No. 1 to 15 above. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

## **FUNCTIONAL REQUIREMENTS:**

### **1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

### **2. Scope**

The contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning, prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation, routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

### **3. Functional Requirements (3D Printing Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.
- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for 3D printing lab.
- (c)** Any allied facility or necessary item (Compressed Air / Pneumatic systems, Pumps, Electric Cabinets & switches, etc) will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/ housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.

- (g) The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer’s recommended protocol during the warranty period.
- (h) General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i) The Contractor will provide the required license software, if any, for the supplied equipment.
- (j) The Contractor will assist with any software updates under the warranty period.
- (k) The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l) The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m) The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n) Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for 3D Printing equipment and lab.
- (o) The Contractor shall provide all the necessary safety equipment (02 sets) for operating the machine.
- (p) During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (q) Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.
- (r) The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.
- (s) The Contractor will designate a qualified/certified resident operator on site for a period of 01 Year.

**4. Training Requirements (3D Printing Setup on Turnkey Basis)**

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a) The Contractor will provide complete theoretical and hands-on training on the supplied 3D printing machines to enable participants to safely, independently, and efficiently operate the equipment.
- (b) Training shall cover a full overview of the machine, including identification and function of all major components, technical specifications, installation requirements, and environmental conditions needed for optimal performance.

- (c)** The Contractor will provide comprehensive safety training, including electrical and mechanical safety, safe handling and storage of printing materials, use of personal protective equipment (PPE), emergency shutdown procedures, and fire or fault response actions.
- (d)** Training shall include full instruction on required software, including installation, configuration, file preparation, slicing, parameter selection (layer height, infill, supports, speed, temperature), calibration procedures, and best practices for achieving optimal print quality.
- (e)** The Contractor will demonstrate and supervise hands-on operation of the machine, including startup and shutdown procedures, material loading and unloading, job setup, print monitoring, quality inspection, and post-processing where applicable.
- (f)** The Contractor will train participants on routine, preventive, and corrective maintenance, including daily, weekly, and periodic maintenance tasks, cleaning procedures, replacement of consumables and wear parts, lubrication (if applicable), and maintenance scheduling.
- (g)** Training shall include troubleshooting of common faults and print defects, explanation of machine error messages, corrective actions, and clear guidance on issues that can be resolved by users versus those requiring vendor technical support.
- (h)** The training shall be delivered through a combination of classroom explanation, live demonstrations, and supervised practical exercises on the actual machine supplied.
- (i)** The training duration shall be sufficient to cover all topics effectively, and the schedule shall be agreed upon with the Purchaser after installation and commissioning of the machine.
- (j)** The Contractor will train participants, including operators, technicians, and/or engineers designated by the Purchaser.
- (k)** The Contractor will provide all training materials, including user manuals, operation and maintenance manuals, troubleshooting guides, standard operating procedures (SOPs), and soft or hard copies of presentation materials.
- (l)** The Contractor will provide training completion certificates to all participants who complete the training.
- (m)** The Contractor will submit a brief training completion report summarizing topics covered, attendance, and practical outcomes.
- (n)** Training shall be considered completed when participants demonstrate the ability to independently operate the machine, perform basic maintenance, and resolve common operational issues.
- (o)** The training shall align with machine warranty requirements, and the Contractor shall explain post-training technical support procedures, escalation channels, and response timelines.

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
1	Humanoid Robot (QTY: 1)	Total Degree of Freedom (DOF) 23, Single Leg Degree of Freedom (per leg) 6, Waist Degree of Freedom (DOF) 1, Single Arm Degree of Freedom (DOF) 5, Calf + Thigh Length 0.6 m, Arm Span ≈ 0.45 m, Knee Joint Torque 90 N·m, Maximum Arm Load ≈ 2 kg, Joint Angle Ranges Waist (Z): ±155° Knee: 0°–165° Hip Pitch: ±154° Hip Joint: ±154°, R-30° +170° , Y±158°, Battery Life ≈ 2 hours, 8-core high-performance CPU, Dual encoders per joint, Hand: 3 finger force control dexterous hand, Dimensions (Standing) 1320 × 450 × 200 mm, Weight (with battery) ≈ 35 kg, Local air cooling, Depth camera + 3D LiDAR, Connectivity WiFi 6, Bluetooth 5.2
2	Cobot 1 (QTY: 1)	Degrees of Freedom (DOF) 6 axes, Maximum Payload ~3kg, Maximum Reach ~740 mm, Repeatability 0.1 mm, Joint Rotation Range up to J1: ±360°J2: 0–180°J3: ±90° J4: ±90°J5: ±90°J6: ±360°, Joint Maximum Speed ~180°/s, Maximum Joint Torque Up to 70 N·m, Supply Voltage 24~48 V DC, Current Requirement <20 A, Maximum Power Consumption ~500 W, Control Modes Position + Force Control, Structure Material Aluminum alloy, End-Effectors options (Gripper, pen etc.) Developer Support Open SDK
3	4D LIDAR L2 (QTY: 5)	Technology /4D Data: 3D position + 1D grayscale (Support 2D Mode), Maximum Range 30 m @ 90% reflectivity; 15 m @ 10% reflectivity, Minimum Distance (Nearby Blind Area) 0.05 m, Field of View (FOV) 360° × 90° , Sampling Frequency 128,000 points/s (raw); Circumferential Scanning Frequency 5.55 Hz, Measurement Accuracy +- 2.0 cm, Distance Resolution 4.5 mm, IMU Built-in: 3-axis accelerometer + 3-axis gyroscope; Eye Safety Class Class 1 (IEC 60825-1:2014), Operating Temperature -10 °C to +50 °C, Communication Interfaces ENET UDP; TTL UART, Laser Wavelength ~905 nm

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
4	Wheeled Mobile Robot Base (QTY: 1)	Raspberry Pi 5B (8 GB) or Jetson Orin, Stereo camera Equipped with LIDAR Onboard Sensors IMU; wheel encoders; bump detection; Operating System/ Middleware ROS 2 pre-installed and configured, Simulation & Code Resources Gazebo simulation model; demo code; detailed user documentation; tutorials, Maximum Speed ~ 0.31 m/s, Payload Capacity equal or more than 9 kg, Operating Time 2.5 – 4.0 hours
5	Robotic Dog (with controller) (QTY: 1)	Weight (with Battery) About 15 kg, Material Aluminium Alloy + High Strength Engineering Plastic, Voltage 28V ~ 33.6V, Working Maximum Power About 3000 W, Payload ≈ 4 kg Speed (Walking / Running) 0 ~ 3.7 m/s (Max ~ 5 m/s), Peak Joint Torque Approx. 45 N·m, Number of Knee Joint Motors 12 sets, Range of Motion (ROM) Body: -48° ~ +48°; Thigh: -200° ~ +90°; Shank: -156° ~ -48°, Standard Ultra-wide LiDAR 360° × 90° hemispherical ultra-wide recognition; minimum detection distance 0.05 m, Wireless Modules Wi-Fi 6 / Bluetooth / 4G (Built-in), Intelligent Side-Follow System (ISS 2.0) Position in gremote control distance over 30 m; Battery Capacity (Standard) 8,000 mAh, Controller Included (manual controller), Charger Standard charger (33.6 V, 3.5 A)
6	Camera 1 (QTY: 1)	Power 380mA / 5V USB Powered, Output Resolution Side by side 2x (2208 x 1242) @ 15fps/2x (1920x1080) @ 30fps/2x (1280x72) @ 60fps/2x (672x376) @ 100fps, Output Format YUV 4:2:2, Field of View Max. 90° (H) x 60° (V) x 100° (D), RGB Sensor Type 1/3" 4MP CMOS, Active Array Size 2699x1520 pixels per sensor (4MP), Focal Length 2.8mm (0.11") - f/2.0, Shutter Electronic synchronized rolling shutter, Interface USB 3.0 Type-C port, Depth Map Resolution Native video resolution (in Ultra mode), Depth Accuracy < 1.5% up to 3m / < 7% up to 15m, Motion Sensors Gyroscope, Accelerometer Sampling Rate 800Hz, Technology Visual-inertial stereo SLAM, 6-axis Pose Accuracy Position: +/- 1mm,
7	Camera 2 (QTY: 5)	Operating Range (Min-Max) ~.3m - 3m, Depth Resolution and FPS: 1280x720 30fps, Depth Field of View: H:87 V:58, RGB Sensor System Interface Type: USB3

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
8	Camera 3 (QTY: 5)	Frame Rate 60, Lens Mount S- Mount, Pixel Size 3.45, Quantum Efficiency 65(530nm), Resolution 1440 x 1080, Sensor Type CMOS, Sensor Format 1/2.9", ADC 10-bit, Chroma Mono, Megapixels 1.6, Readout Method Global shutter, Sensor Name Sony IMX296, Tiny package of 27 mm x 27 mm x 14 mm, Only 2W power consumption
9	Robotics Construction Set Building Blocks (QTY: 5)	Small building block Compatible with Lego), Self-Locking Bricks Compatible Motor, Controller Hub, Proximity Sensor, Tilt Sensor, Bluetooth connection
10	DOFBOT Pro 3D Depth Vision Robotic Arm (QTY: 5)	Based on NVIDIA Jetson series board, 6 DOF structural design, aluminum alloy material, Developed for ROS education, features Python support and deep learning with Media Pipe Depth point cloud recognition, gripping in 3D space
11	High-end Computers (QTY: 2)	High end computers (at least 13th generation, i5 with 16GB DDR5 RAM) with GPU (RTX 5000 series or better), HDD (1TB or better) and SSD (500 GB or better), Intel Ethernet adapter and UPS with at least 10 mins of backup time, along with all the standard peripherals, including but not limited to Mouse, Keyboard, 27" 2K LED Monitor, cables etc.)
12	Quadcopter Carbon Fiber Frame Kit (For QAV250 250mm Mini FPV) (QTY: 10)	1.5mm carbon fiber fuselage, Machine arm 3.0mm, Aluminum Jin Zhuzai, AV shockproof ball, FPV installed by edition Screw, Prop suggest: 5*3, Motor suggest: 1804-2204, Battery suggest: 3S 1300-1800ma., Flight Controller: FPV Manuals CC3D, RMRC CC3D, Naze32, Flip Pro MWC, Receiver: T6- receiver, CCD Camera: SONY Super HAD CCD 600TVL Board Camera w/ 2.8mm lens - HD Camera: Mobius Action Camera Immersion RC 600mw Video Transmitter Antenna: Immersion RC Spiro Net V2 (SMA), Wheelbase: 250mm
13	DJI Quadcopter F450 Frame (QTY: 10)	Quadcopter F450 250mm Frame, DJI flame wheel f450 weight is 0.45 kilograms, up to 100A input. Conducting board of F450 kit contains one side for +ve DC and another side for -ve DC. It is possible for a Multi-Copter battery connection. connect up to 8 motors to the board. Its main board is made of glass fiber. Its frame rotor is nylon + glass fiber for hardness and anti-press. high composite PCB board. 4 pieces of main arms 2 pieces of centerboards, Screws and etc

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
14	Frame Kit (F550 Hexa-Rotor 550mm 6-Axis) (QTY: 10)	Materials: glass fiber +ABS plastics, Rack weight: 424 g, Wheelbase symmetrical motor: 550 mm, Takeoff weight: 1200-2400 grams, Propeller: 10 x 4.5in; 8 x 4.5in
15	FPV Quadcopter Frame Discovery (X500 Alien V2 TBS DJI Economy) (QTY: 10)	Material: fiberglass + plastic ,Motor Mount : 16mm + 19mm Weight: 310g M to M , Diagonal: 500mm
16	Fully Carbon Fiber Mini Racing Quadcopter Frame (FPV M250-C30 250mm) (QTY: 10)	Materials: 3k Weave Carbon Fiber, Fasteners: Stainless Steel & Red Metal 8/8, Size: 220mm diagonally, 175mm wide, 130mm long motor-to-motor; about 1/2 the size of a regular quadcopter, Maximum Propeller: 5", Motor Mount: M2 12mm - 16mm (Tiger MN1806 2300kv, RCX 1804 2400kv), M3 19mm (Tiger MT2206 2000kv, Sunnysky X2204 2300kv) Flight Controller Mount: 30.5mm x 30.5mm Board Camera Mount: 32mm x 32mm
17	Flight Controller Holybro Pixhawk 6C (QTY: 10)	FMU Processor: STM32H743, 32 Bit Arm® Cortex®-M7, 480MHz, 2MB memory, 1MB SRAM, IO Processor: STM32F103, 32 Bit Arm® Cortex®-M3, 72MHz, 64KB SRAM, Accel/Gyro: ICM-42688-P, Accel/Gyro: BMI055, Mag: IST8310, Barometer: MS5611, Max input voltage: 6V, USB Power Input: 4.75~5.25V, Servo Rail Input: 0~36V, TELEM1 Max output current limiter: 1.5A, All other port combined output current limiter: 1.5A, Dimensions: 84.8 * 44 * 12.4 mm, Weight: 59.3g, 16- PWM servo outputs (8 from IO, 8 from FMU), 3 general purpose serial ports, 2 GPS ports, 1 I2C port, 2 CAN Buses, 2 Debug ports:, Dedicated R/C input for Spektrum / DSM and S.BUS, CPPM, analog / PWM RSSI, Dedicated S.BUS output 2 Power input ports (Analog)
18	Flight Controller Cube Orange (QTY: 10)	STM32H753VI (32bit ARM Cortex M7), 400 MHz, 1 MB RAM 2 MB Flash (fully accessible), Failsafe co-processor: STM32F103 (32bit ARM Cortex-M3), 24 MHz, 8 KB SRAM Accelerometer: (3) ICM20948, ICM20649, ICM20602, Gyroscope: (3) ICM20948, ICM20649, ICM20602, Compass: (1) ICM20948, Barometric Pressure Sensor: (2) MS5611, Operating Temp: -10C to 55C, Not waterproof, Servo rail input voltage:

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
		3.3V / 5V, USB port input: Voltage: 4V - 5.7V, Rated current: 250 mA, Input voltage: 4.1V - 5.7V, Rated input current: 2.5A, Rated input/output power: 14W, Cube: 38.25mm x 38.25mm x 22.3mm, IO Ports: 14 PWM servo outputs (8 from IO, 6 from FMU), 5x UART (serial ports), one high-power capable, 2x with HW flow control, 2x CAN (one with internal 3.3V transceiver, one on expansion connector), Spektrum DSM / DSM2 / DSM-X® Satellite compatible input Futaba S.BUS® compatible input and output, PPM-SUM signal input, RSSI (PWM/voltage) input, I2C, SPI, 3.3v ADC input Internal microUSB port and external microUSB port extension Ports
19	Flight Controller Board (With M8N Ublox GPS and Accessories Ardupilot APM 2.8) (QTY: 10)	Data transmission port, Analog sensor port, Autostability gimbal output, ATMEGA2560 SPI online programming port (be useful for optical flow sensor), USB port, Remote control input Function selection jumper, GPS port, I2C external compass port, ATMEGA32U2 SPI online programming port, Multifunction configurable MUX port (OSD is the defaulted output), Current voltage port, ESC power supply selection jumper, ESC output port
20	Flight Controller Board (For Multicopter APM 2.8) (QTY: 10)	Power supply: LP2985-3.3., Port: MUX (UART0, UART2, mnnI2, and OSD are optional, OSD is the defaulted output).Input Voltage (V): 12~16 VDC, Sensors: 3-Axis Gyrometer, Accelerometer High-performance Barometer, Processor: ATMEGA2560 and ATMEGA32U-2, Micro-SD Card Slot: No Dimensions (mm) LxWxH: 85 x 45 x 15, Weight (gm): 82
21	Radio Telemetry Kit 3DR (QTY: 10)	Supports to MWC / APM / PX4 / Pixhawk flight control, weight is 50g, It is CP2102 high-quality USB to TTL chips, The sensitivity of Receiver is -118 dBm, MAVLink Framework Agreement, Frequency-hopping spread spectrum (FHSS), 2-way full-duplex communication adaptive TDM, Up to 25% can be corrected bit errors, it based Si1000 and Si4432 wireless microcontroller modules.
22	GPS Module (e.g., NEO-M8N) (QTY: 15)	GPS/QZSS L1 C/A, GLONASS L10F, BeiDou B1, SBAS L1 C/A: WAAS, EGNOS, MSAS, Galileo-ready E1B/C (NEO-M8N), Onboard Compass, Assistance Assist Now GNSS Online, Assist Now GNSS Offline (up to 35 days), Assist Now Autonomous (up to 6 days), OMA SUPL & 3GPP compliant Oscillator TCXO (NEO-M8N/Q), Crystal (NEO-M8M), RTC

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
		crystal Built-In, Noise figure On-chip LNA (NEO-M8M). Extra LNA for lowest noise figure (NEO-M8N/Q) Anti-jamming Active CW detection and removal. Extra onboard SAW band pass filter (NEO-M8N/Q) Memory ROM (NEO-M8M/Q) or Flash (NEO-M8N) Supported antennas Active and passive Odometer Travelled distance Data-logger For position, velocity, and time (NEO-M8N)
23	1000KV Brushless Motor (For Multirotor XXD A2212) (QTY: 40)	KV (rpm/volt): 1000, Thrust: 900/4, Efficiency : 80%, efficiency current: 4-10A (>75%), Current capacity : 12A/60s, Load current @10v: 0.5A, Working voltage: 7-12V
24	Brushless Outrunner Motor (A2212 1400KV 4pcs set) (QTY: 40)	KV (rpm/volt): 1400, Thrust: 900/4, Efficiency : 90%, efficiency current: 4-10A (>85%), Current capacity : 12A/60s, Load current @10v: 0.5A, Working voltage: 7-12V
25	RC Brushless Motor (A2212/6T 2200kv) (QTY: 40)	Motor size: 22mm diameter x 12mm shaft height, KV rating: 2200, Number of turns: 6, Shaft size: 3.17mm (1/8"), Bearings: Dual ball bearings, Weight: 49g, Max current: 12A/60s, Recommended ESC: 18A, Max efficiency: 80%, Max power: 239 W, Recommended model weight: 300-1000g
26	Propellers 10 inch (QTY: 100)	Material: Carbon Fiber, 10 inches 25.4cm 1045 Propellers diameter: 25.4cm, Slope: 4.5"(11.43 cm), 100% Brand New. Diameter: 10 "(25.4 cm), Slope: 4.5 "(11.43 cm), The diameter of the Shaft: 6.0mm, The thickness of the center: 9.0mm For Vehicle Type: Quadcopter, Drone, Air Bike or any Project
27	Battery (QTY: 20)	Rechargeable lithium polymer battery, consists of 3s. parameters are 11.1V 5200mah and 30C. capacity is 5200 mah. discharge time is 30C. Battery size is 146 x 49 x 29 mm. voltage is 11.1V. 3 cells inside. T plug and adjusted fitting type of attachment. charging type is a balanced plug.

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
28	Battery Charger (QTY: 5)	AC input voltages are 100 to 240V or 12V DC input. 11 to 18V DC input voltage. 50W maximum output power. charge current range is 0.1 to 5A. maximum discharge power is 5W. discharge current range is 0.1 to 1A. 300mA per cell for drain current for balance LiPos. 1 to 6 cells Li-ion/Po cell count. 1 to 15 cells NiCd/ NiMH cell count. 2 to 20V Pb battery voltage. cord total length is 1 meter. 100 to 250V AC is its cord voltages. 2.5A max cord current. female end type for IEC (to charger) and a male End Type for EU plug, size is 133 x 87 x 33 mm. weight is 580g.
29	PDB (Power Distribution Board) (QTY: 20)	Used for: Any Quadcopter Frame Package size: 7 * 7 * 1cm / 2.8 * 2.8 * 0.4in Package weight: 37g / 1.3oz
30	XT60 Connectors / Battery Leads (QTY: 60)	16 AWG Silicon Wire, 10cm Length, High-Power Capability: Wide Compatibility.
31	FS-16 Transmitter with FS-1A6 Receiver (QTY: 10)	6 channels. fixed-wing, glider, and helicopter, multirotor. 2.405 to 2.475 GHz is its RF range. bandwidth is 500 kHz. band is 142. RF power less than 20 dBm. AFHDS 2A and AFHDS have 2.4G system. GFSK is its code type. Sensitivity 1024. low voltage warning when it has less than 4.2V. PS2 is its DSC port. And PPM is its output. no charger port. 26 x 2 mm antenna length. power is 6V 1.5AA x 4. display mode is transfective STN positive, 128 x 64 dot matrix VA73 x 39 mm, and white backlight. size is 174 x 89 x 190 mm. online update feature.
32	QX_MOTOR RC Airplane Parts F450 F550 FPV Aerial Photography Gimbal Damping Tall Foot Stool (QTY: 20)	Hole spacing of top center: 68mm, The span of the bottom: 330mm, Height: 190mm, The diameter of instal tube: 8mm, The diameter of foot stool: 8mm, Usage: for DJI F450 F550,quadcopter,6-axis product and other multirotor frame
33	Hex Driver / Screwdriver Set (QTY: 10)	Hex Key Set, 9 PCS: Hex key 1.5mm, Hex key 2mm, Hex key 2.5mm, Hex key 3mm Hex key 4mm, Hex key 5mm, Hex key 6mm Hex key 8mm, Hex key 10mm

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
34	Vibration Dampening Mount (QTY: 20)	Fiber glass flight controller anti-vibration shock absorber is good for APM, Pixhawk, DIY UAS Drone. Material: Glass fiber Largee Plate Size : 100*69*1.5mm, Small Plate Size: 91*61*1.5mm, Weight: 24g
35	GPS Mount for APM NEO M8N (QTY: 20)	GPS Mount for APM NEO M8N 7M 6M Modules Stand Foldable with necessary accessories
36	Propeller Guards (QTY: 20)	F450 F550 7-13 Inch Propeller Protector 1045 Propellers, Guard 4-Axis for Quadcopter, Fit for F450, F550 Quadcopter Snap on / off removable prop guards, 4 x Protective Rings, 8 x Fixed screws
37	Camera Gimble, 2-axes (QTY: 5)	2 axis gyro, Flight controller: BGC Besides, Battery plug: JST Weight: about 212g / 7.5oz
38	E-bike Wheels Scooter Hub Motor + Controller (QTY: 12)	Voltage: 24v. Motor Type: Balance Car, Scooter, Brushless Hub motor. 6 inches, Power Output: 250w-350w. Shaft Diameter: Axle size 13.5mm & 16mm, length 53mm. Wire length: 200mm approx. Opening size: 110mm. Max speed: 26km/h. Weight: 3kg approx.
39	E-bike Wheels Scooter Hub Motor + Controller (QTY: 12)	Motor type: brushless gearless. Rated Voltage: 24V. Rated Power: 350W. Wheel Size: 8", Rated speed: 28 km/h. Rated efficiency: >=80%. Weight: 3.5kg. Open Size: 108mm. Brake type: Drum. Waterproof Grade: IP65.
40	Battery packs (QTY: 5)	Li-Ion Battery packs Voltage: 12V Rated capacity: 150 Ah Recharge cycles: More than 3500
41	Jetson Orin Development Kit (QTY: 5)	Nano Super Developer Kit, AI Performance: 67 TOPS, GPU: 1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores, CPU: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3, Memory: 8GB 128-bit LPDDR5, 102 GB/s Video Encode: 1080p30 supported by 1-2 CPU cores with built-in WiFi Adapter, minimum 512 GB NVMe Memory

**LOT No. 2: Robotic Lab Setup on Turnkey Basis**

Sr.	Item	Specifications
42	Raspberry Pi (QTY: 5)	Broadcom BCM2712 2.4GHz quad-core 64-bit Arm Cortex-A76 CPU, with cryptography extensions, 512KB per-core L2 caches and a 2MB shared L3 cache, VideoCore VII GPU, supporting OpenGL ES 3.1, Vulkan 1.3 Dual 4Kp60 HDMI® display output with HDR support, 4Kp60 HEVC decoder, LPDDR4X-4267 SDRAM (16GB), Dual-band 802.11ac Wi-Fi®, Bluetooth 5.0 / Bluetooth Low Energy, microSD card slot, with support for high-speed SDR104 mode, minimum 256 GB Memory Card (Speed Class UHS-3)
43	IMU for localization (QTY: 5)	Grove - IMU 9DOF v2.0 - MPU-9250 is a 9-axis motion tracking device that combines a 3-axis gyroscope, 3-axis accelerometer, 3-axis magnetometer and a digital motion processor™ (DMP).
44	LiDAR (QTY: 5)	Maximum Range 12 Meters, Mounting Type Ceiling Mount, Compatible Devices Robot Operating System, Robotics Systems, Robotics Software, Product Dimensions 28"D x 29.9"W x 16"H,
45	Depth Camera (QTY: 5)	Operating Range (Min-Max) ~.3m - 3m, Depth Resolution and FPS: 1280x720 30fps, Depth Field of View: H:87 V:58 RGB Sensor, System Interface Type: USB3
46	10000mAh LiPo Battery (QTY: 5)	Minimum Capacity: 10000mAh, Configuration: 6S / 22.2v Discharge Rate: 30C, Net Weight(±20g): 1350g, Dimensions: 176 x 66 x 58mm (L x W x H)
47	G-Tech Dual-channel Charger (QTY: 2)	Input voltage: AC 100-240V 50/60Hz, Output voltage: DC 0~32V, Charging current: Max 25A*2, Charging current in storage mode: 25A*2, Discharge current in storage mode: 6A*2, Maximum charging power: 500W x2, Maximum charging power in storage mode: 500W x2, Maximum discharge power in storage mode: 70W*2, Working temperature: 0~60°C, Storage temperature: -20~60°C, Dimensions: 186x174x95mm, Weight: about 1.7Kg, Supported battery type and number of cells: LiPo/LiHV 1-7S (Support G-Tech smart balance connector), Accessories Included: AC Input Cable / USB Cable
48	Pressure Sensor (QTY: 5)	Supply Voltage (Vin) 2.5–5.5 V, I2C Logic Voltage (SDA and SCL) 2.5–3.6 V, Peak Current 1.25 mA, Maximum Mechanical Pressure 10 bar - 50 bar, Storage Temperature-40 to 85°C, Maximum Continuous Submersion 24 hrs, Weight in Air 14 g, Bulkhead Thread M10 x 1.5,

LOT No. 2: Robotic Lab Setup on Turnkey Basis		
Sr.	Item	Specifications
		Installation Hole (Port) Size, Clearance 10.0–10.2 mm, Tapped M10 x 1.5, 2C Address 0x76, Connector 4-position JST GH
49	Warranty	Standard 01 Year Warranty for all Items
50	Extended Warranty	Extended Warranty for 02 additional years for all Items. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

### **FUNCTIONAL REQUIREMENTS:**

#### **1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

#### **2. Scope**

The Contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning, prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation, routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

#### **3. Functional Requirements (Robotic Lab Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.

- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for the Robotic lab.
- (c)** Any allied facility or necessary item will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/ housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.
- (g)** The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer's recommended protocol during the warranty period.
- (h)** General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i)** The Contractor will provide the required license software, if any, for the supplied equipment.
- (j)** The Contractor will assist with any software updates under the warranty period.
- (k)** The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l)** The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m)** The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n)** Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for the Robotic Lab Setup.
- (o)** The Contractor shall provide all the necessary safety equipment (02 sets) for operating the machine.
- (p)** During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (q)** Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.
- (r)** The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.
- (s)** The Contractor will designate a qualified/certified resident operator on site for a period of 01 Year.

#### 4. Training Requirements (Robotic Lab Setup on Turnkey Basis)

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a) The contractor shall provide comprehensive theoretical and hands-on training on the supplied robotics machines to enable participants to safely operate, program, maintain, and troubleshoot the equipment for intended use.
- (b) Training shall include an overview of robotics fundamentals, including robot types (industrial, collaborative, educational, or mobile as applicable), system architecture, degrees of freedom, payload limits, reach, accuracy, and work envelope.
- (c) The contractor shall provide detailed safety training, including robot safety standards, safe operating zones, emergency stop procedures, lockout/tag out practices, human–robot interaction safety, and use of personal protective equipment.
- (d) Training shall cover installation and commissioning procedures, including mechanical mounting, electrical connections, controller setup, calibration, homing, and validation of robot movements.
- (e) Training shall include instruction on robot controllers and interfaces, including teach pendants, control software, user permissions, and system configuration.
- (f) The contractor shall provide training on robot programming, including basic and intermediate programming concepts, motion types, coordinate systems, tool and work object definition, I/O configuration, and program execution.
- (g) Training shall include hands-on exercises for teaching points, creating motion paths, editing programs, running test cycles, and optimizing cycle time.
- (h) The contractor shall train participants on integration with peripheral devices, such as sensors, vision systems, conveyors, grippers, end-effectors, safety devices, and PLCs, where applicable.
- (i) Training shall include guidance on basic robot vision or sensing systems, including setup, calibration, and use for object detection or alignment, if part of the supplied system.
- (j) The contractor shall provide instruction on routine, preventive, and corrective maintenance, including inspection schedules, lubrication, battery replacement, backup procedures, and consumable parts replacement.

- (k)** Training shall include troubleshooting of common hardware, software, and programming issues, including alarms, faults, positioning errors, communication problems, and corrective actions.
- (l)** The contractor shall demonstrate and supervise hands-on operation of the robot in manual and automatic modes, including startup, shutdown, recovery from faults, and safe restart procedures.
- (m)** Training duration shall be adequate to fully cover the scope and shall be finalized in agreement with the client.
- (n)** The contractor shall provide complete training materials, including user manuals, programming guides, safety documentation, maintenance manuals, sample programs, and digital training resources.
- (o)** Trainers provided by the vendor shall be qualified and experienced with the supplied robotics machine model and application.
- (p)** The contractor shall provide training completion certificates and a training report summarizing attendance, topics covered, and demonstrated competencies.
- (q)** Training shall be considered successfully completed when participants demonstrate the ability to safely operate the robot, execute and modify basic programs, perform routine maintenance, and resolve common faults independently.
- (r)** The training shall align with machine warranty and support agreements, and the vendor shall clearly explain post-training technical support, escalation procedures, and response timelines.
- (s)** The contractor shall ensure the robotics machines and software are fully operational during training.

**LOT: 03**

**Item: 01 CNC Lathe Machine**

**Quantity: 01**

<b><u>Item: 01 CNC Lathe Machine</u></b>			
<b>Description</b>		<b>Remarks</b>	<b>Unit</b>
<b>Spindle</b>	Spindle head	FL 140 h5/A2-6	mm
	Maximum spindle speed	5000	rpm
	Maximum torque	189	Nm
	Spindle power	7.5-11	KW
	Self-centering chuck diameter	6	inches
	Spindle bore diameter	74/66	mm
	Front bearing diameter	100	mm
	Speed range	5-5000	rpm
<b>Processing Range</b>	Maximum swing over bed	558	mm
	Maximum turning diameter	328	mm
	Maximum turning length	290	mm
	Maximum bar diameter	51	mm
	X-axis travel	180	mm
	Z-axis travel	380	mm
<b>System Configuration</b>		FANUC 0i TF	
<b>Motor Configuration</b>	X-axis motor	βisc12B	
	Z-axis motor	βisc12	
	C1-axis motor	Bisc22	
	Spindle motor	βil12	

**Item: 01 CNC Lathe Machine**

<b>Description</b>		<b>Remarks</b>	<b>Unit</b>
<b>Feed Rate</b>	X-axis rapid feed	30	m/min
	Z-axis rapid feed	30	m/min
<b>Feed rate</b>	C1-axis rapid feed	100	m/min
	C1-axis torque	112	Nm
<b>Axis thrust</b>	X/Z axis thrust	4500	Nm
	Number of axes	2	
<b>Accuracy</b>	Positioning accuracy	0.008/0.008	mm
	Repeat positioning accuracy	0.004/0.005	mm
<b>Servo Turret</b>	Number of tools	12	
	Tool size	25	mm
	Servo turret type	BMT55	
	Maximum clamping force	4000	N
	Servo turret rotation	3000	Rpm
	Servo turret power	3	KW
	Servo turret torque	35	Nm
<b>Machine dimensions (with chip conveyor)</b>		3950 x 1850 x 1850	mm
<b>Machine weight</b>		Approx. 3200	Kg

**System Standard Functions:**

<b>Item: 01 CNC Lathe Machine</b>		
<b>Sr. No.</b>	<b>Function</b>	<b>Description</b>
<b>1</b>	<b>CNC Functions</b>	Minimum resolution: 1µm Maximum travel speed: 30/30 m/min Automatic acceleration and deceleration control Reference point return Coordinate system setting MDI function M, S, T functions
<b>2</b>	<b>CNC Programming</b>	Minimum programming unit: 0.001mm, 0.001 degree Maximum programming dimension: 99999.999 Maximum programming line count: 2 billion Metric/inch programming Absolute/relative command programming Macro programming Subroutine call Plane selection Work-piece coordinate system setting Local coordinate system setting Coordinate rotation, scaling, and mirroring
<b>3</b>	<b>Editing</b>	Background editing Character search and replacement File deletion and copying
<b>4</b>	<b>Display</b>	Language menu function – Everything should be in English Language Graphic display, Status display, Current position display, Program display, Program error display Operation error display, Alarm display, Axis setting display, Spindle speed, Self-diagnosis function
<b>5</b>	<b>Interpolation Functions</b>	Linear interpolation Circular interpolation Polar coordinate interpolation Cylindrical interpolation, etc.
<b>6</b>	<b>Tool Compensation</b>	Tool Length Compensation Tool Radius Compensation
<b>7</b>	<b>Operation</b>	10.4" Color LCD Display

**Item: 01 CNC Lathe Machine**

Sr. No.	Function	Description
8	Operation Modes	Automatic Single-Segment MDI Jog Incremental Feed Manual Incremental Feed Manual/Automatic Reference Point Return Feed Hold Dry Run
9	Feed Axis Functions	Feed Override 0% to 150% Rapid Traverse Override 0%, 25%, 50%, 100%
10	Spindle Functions	Spindle Speed: PLC Programmable Spindle Override 50%-120%
11	Other Features	Embedded Ethernet, Program protection function, USB Port

**Standard Configuration:**

Sr.	Item Description	Qty.
1	FANUC Oi-TF CNC system	1
2	Turret	1
3	Chuck & Cylinder	1
4	Hydraulic station	1
5	Electric cabinet heat exchanger	1
6	Automatic lubrication system	1
7	Three-color light	1
8	Chip removal system	1
9	Water tank	1
10	Lighting fixtures	1
11	Programmable tailstock	1
12	Machine accessories	1 set
13	Machine files	1 set
13.1	Packing list	1
13.2	Certificate of Conformity	1
13.3	Machine Operation Manual	1
13.4	Electrical Operation Manual	1
13.5	CNC system Operation Manual	1
13.6	Main outsourced parts information	1

**Major Parts Requirements:**

Sr.	Description	Brand
1	CNC System 0i TF	FANUC
2	Spindle motor	FANUC
3	X/Z axis motor	FANUC
4	Ball screw	Taiwan
5	Screw support bearings	Japan
6	Linear guides	Taiwan
7	Spindle bearings	Japan
8	Turret	Taiwan
9	Chuck & Cylinder	Taiwan
10	Hydraulic station	Taiwan
11	Lubrication pump	Taiwan
12	Electrical cabinet heat exchanger	JapanTaiwan/Equivalent
13	One set of hard jaws	Taiwan
14	One set of soft jaws	Taiwan
15	Square tool holder – 01 Pc	Taiwan
16	Circular tool holder – 03 Pcs	Taiwan

Warranty	Standard 01 Year Warranty
Extended Warranty	Extended Warranty for 02 additional years. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

**LOT: 03**

**Item: 02 Vertical Machining Center – Milling Machine**

**Quantity: 01**

Description	Unit	Remarks
X/Y/Z axis travel	mm	1000/600/600
Distance from spindle center to column rail surface	mm	610
Distance from spindle nose to worktable	mm	110-710
Worktable size	mm	1100x600
Max. load	kg	700
<b>Controller</b>		
Siemens System	-	828D Sw28x
<b>Spindle</b>		
Max. spindle speed/taper	rpm	15000/BBT40
Driving type	-	Direct Drive High Surface Finish
Spindle power (S1/S6-25%)	KW	9/17.1/21.2
Output torque (S1/S6-25%)	Nm	53/108/135
<b>3-axis Motor</b>		
X/Y/Z axis rapid feed speed	m/min	36/36/36
X/Y/Z axis motor power	KW	2.9/2.9/3.55
X/Y/Z axis motor torque	Nm	22/66
<b>Positioning accuracy/repeated positioning accuracy</b>		
X/Y/Z axis positioning accuracy	mm	0.003/300
X/Y/Z axis repeated positioning accuracy	mm	0.002/300
<b>ATC</b>		
Tool number	pcs	24T

<b>Machine size</b>		
Dimensions	mm	3100x2700x3000 (Max.)
Net weight	kg	6800 (Max.)
Power	Kw	35

## Standard Configurations of BF-V10

Sr.	Configuration		
1	Controller: Siemens 828D Sw28x	11	Guideway cover
2	Spindle motor: 9KW / 15000 RPM	12	Fully enclosed metal cover
3	X/Y/Z motor: 2.9/2.9/3.55 KW	13	BBT40-24T tool magazine
4	Spindle: BBT40-15000 Direct drive type	14	Alarming light
5	Work-piece blowing system	15	LED working light
6	Cutting fluid cooling system Spindle chiller Oil Based	16	Auto power off
7	Auto central lubrication system	17	Safe door lock
8	Hand-wheel	18	Air gun
9	Spindle oil coolant	19	High pressure Oil gun
10	Heat exchanger	20	Dual screw +chain type chip conveyor

## Major Parts Requirements

Sr.	Description	Brand	Origin	
1	Control system	Siemens	Germany	828D
2	Spindle motor	Siemens	Germany	1PH8107-1DF02-0LA1
3	X/Y/Z motor	Siemens	Germany	2.9/2.9/3.55KW
4	Spindle	ROYAL	Taiwan	BBT40 12000rpm
5	X/Y/Z screw	THK	Japan	4012
6	X/Y/Z guideway	THK	Japan	45/45/45
7	Bearing	NACHI	Japan	30TAC
8	Coupling	SPEEDCN	Taiwan	/
9	Cylinder system	Hinaka	Taiwan	BPF-10U12N110FA-DC24V
10	Spindle cooling system	Rucol	Taiwan	RCO-25PTS
11	Heat exchanger	Rucol	Taiwan	RC-25AR
12	Cutting Cooling Motor	Luikar	Taiwan	LDPB2-30
13	Cutting fluid pump	SMC	Japan	VX210EGXB
14	Solenoid valve/two-way valve	SMC	Japan	AR20-02-B
15	Pressure reducing valve	SMC	Japan	AR23P-270AS
16	Pressure reducing valve accessory/bracket	SMC	Japan	AW30-03D-B
17	Filter regulator	Mitsubishi	Japan	S-T80

18	Main contactor	Mitsubishi	Japan	NFC60-SMX
19	Circuit Breaker	Omron	Japan	RU2S-D24
20	Relay	Omron	Japan	LRS-150-24
21	Switching power supply	BAOTN	Taiwan	BT-C3Pvolumetric
22	Central lubrication system	SAIYANG	Taiwan	N-220A4X5P4C-DGBK
23	Hand-wheel	SAIYANG	Taiwan	Special oil-proof material

Warranty	Standard 01 Year Warranty
Extended Warranty	Extended Warranty for 02 additional years. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

### **FUNCTIONAL REQUIREMENTS:**

#### **1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

#### **2. Scope**

The contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation, routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

#### **3. Functional Requirements (CNC Lathe & Milling Machines Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.
- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for the CNC Lab.

- (c)** Any allied facility or necessary item (Compressed Air / Pneumatic systems, Pumps, Electric Cabinets & switches, etc) will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.
- (g)** The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer's recommended protocol during the warranty period.
- (h)** General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i)** The Contractor will provide the required license software, if any, for the supplied equipment.
- (j)** The Contractor will assist with any software updates under the warranty period.
- (k)** The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l)** The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m)** The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n)** Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for the CNC equipment and lab.
- (o)** Vibration Control System: The system must be supplied with a vibration control system to minimize vibration and noise.
- (p)** The Contractor shall provide all the necessary safety equipment (O2 sets) for operating the machine.
- (q)** Standard tooling set (01 Set) will be provided along with the machine. Details of the tooling set will also be submitted with the bid.
- (r)** FEA (Finite Element Analysis) report (if applicable) for the equipment to be supplied must be provided by the Contractor.
- (s)** During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (t)** Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.
- (u)** The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.
- (v)** The Contractor will designate a qualified/certified resident operator on site for a period of 01 Year.

#### 4. Training Requirements (CNC Lathe & Milling Machines Setup on Turnkey Basis)

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a) The Contractor will provide comprehensive theoretical and hands-on training on the supplied CNC machines to enable participants to safely operate, program, set up, maintain, and troubleshoot the machines for intended machining operations.
- (b) Training shall include an overview of CNC machining fundamentals, including machine configuration, axis definitions, work envelopes, spindle specifications, tool changers, fixtures, and differences between milling and lathe machining.
- (c) The Contractor will provide detailed safety training, including machine safety protocols, emergency stop procedures, safe tool handling, chip and coolant safety, guarding, interlocks, and use of personal protective equipment.
- (d) Training shall cover machine installation, leveling, power requirements, startup and shutdown procedures, homing, and machine calibration basics.
- (e) Training shall include instruction on the CNC controller and interface, including control panel functions, offsets, coordinate systems, tool management, alarms, and machine parameters.
- (f) The Contractor will provide training on CNC programming fundamentals, including G-codes and M-codes, program structure, canned cycles, tool length and work offsets, and program editing.
- (g) Training shall include all relevant software usage relevant to the supplied machines, including model import, toolpath creation, post-processing, and simulation for milling and lathe machining.
- (h) Training shall cover machining strategies specific to each axis configuration, including indexing and continuous machining concepts, collision avoidance, and machine kinematics.
- (i) The Contractor will provide hands-on training for machine setup, including work holding, fixturing, tool selection, tool setting, probing (if available), and job setup verification.
- (j) Training shall include instruction on cutting parameters, material selection, feeds and speeds, tool wear monitoring, and surface finish optimization.
- (k) The Contractor will demonstrate and supervise hands-on machining operations, including dry runs, first-article inspection, cycle execution, and job completion.
- (l) Training shall include troubleshooting of common machining and machine faults, including tool breakage, chatter, dimensional inaccuracies, alarms, and corrective actions.
- (m) The Contractor will provide training on routine, preventive, and corrective maintenance, including lubrication systems, coolant management, chip removal, inspection schedules, backup procedures, and consumable replacement.
- (n) Training shall include basic machine accuracy checks and alignment verification, as applicable to operator-level maintenance.
- (o) Training shall be delivered through a combination of classroom instruction, live demonstrations, relevant simulations, and supervised practical sessions on the supplied CNC machines.
- (p) Training duration shall be sufficient to cover all axis configurations and shall be agreed with the client.

- (q)** The Contractor will train participants, including operators, programmers, technicians, or engineers designated by the client.
- (r)** The Contractor will provide complete training materials, including operator manuals, programming guides, documentation, safety instructions, maintenance manuals, sample programs, and digital resources.
- (s)** Training shall be considered successfully completed when participants demonstrate the ability to safely set up, program, and machine parts on milling and lathe.
- (t)** The training shall align with machine warranty and support agreements, and the vendor shall clearly explain post-training technical support, escalation procedures, and response timelines.
- (u)** The Contractor will ensure all CNC machines, tooling interfaces, and software are fully operational during training.

**LOT: 04**  
**CNC Fiber Laser Cutter Setup on Turnkey Basis**  
**Quantity: 01**

Sr	Description	Specification
1	<b>Fiber Laser Cutter</b>	power: 3000 watt, professional laser source raycus , cypcut bus control system, blt smart auto-focusing cutting head, high speed veichi bus servo motor system, 67aiwan schneider electrical components, helical precision, hanli/s&a cooling system, airtac 67aiwan pneumatic & gas system, heat treated tube welding machine bed, aluminium alloy gantry, automatic lubrication system, working area 1500*3000mm, fastest positioning speed 100 m/min, form of working plate single bed, biggest acceleration 1.0g, max. cutting capacity ms 20mm/ss 10mm / al 5mm / brass 3mm, positioning/repeatability axis accuracy 0.03mm/0.02mm, overall power distribution 25kw/37a, operating voltage 380v+5% 50hz three-phase

Warranty	Standard 01 Year Warranty
Extended Warranty	Extended Warranty for 02 additional years. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

**FUNCTIONAL REQUIREMENTS:**

**1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

**2. Scope**

The contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning, prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation, routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and

regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

### **3. Functional Requirements (CNC Fiber Laser Cutter Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.
- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for the CNC Lab.
- (c)** Any allied facility or necessary item (Compressed Air / Pneumatic systems, Pumps, Electric Cabinets & switches, etc) will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.
- (g)** The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer's recommended protocol during the warranty period.
- (h)** General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i)** The Contractor will provide the required license software, if any, for the supplied equipment.
- (j)** The Contractor will assist with any software updates under the warranty period.
- (k)** The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l)** The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m)** The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n)** Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for the CNC equipment and lab.
- (o)** The Contractor shall provide all the necessary safety equipment (02 sets) for operating the machine.
- (p)** Standard tooling set (01 Set) will be provided along with the machine. Details of the tooling set will also be submitted with the bid.
- (q)** During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (r)** Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.

- (s) The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.
- (t) The Contractor will designate a qualified/certified resident operator on site for a period of 01 Year.

**4. Training Requirements (Fiber Laser Cutter on Turnkey Basis)**

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a) The Contractor will provide comprehensive theoretical and hands-on training on the supplied CNC machines to enable participants to safely operate, program, set up, maintain, and troubleshoot the machines for intended machining operations.
- (b) Training shall include an overview of CNC machining fundamentals, including machine configuration, axis definitions, work envelopes, spindle specifications, tool changers, fixtures, and differences between milling and lathe machining.
- (c) The Contractor will provide detailed safety training, including machine safety protocols, emergency stop procedures, safe tool handling, chip and coolant safety, guarding, interlocks, and use of personal protective equipment.
- (d) Training shall cover machine installation, leveling, power requirements, startup and shutdown procedures, homing, and machine calibration basics.
- (e) Training shall include instruction on the CNC controller and interface, including control panel functions, offsets, coordinate systems, tool management, alarms, and machine parameters.
- (f) The Contractor will provide training on CNC programming fundamentals, including G-codes and M-codes, program structure, canned cycles, tool length and work offsets, and program editing.
- (g) Training shall include all relevant software usage relevant to the supplied machines, including model import, toolpath creation, post-processing, and simulation for milling and lathe machining.
- (h) Training shall cover machining strategies specific to each axis configuration, including indexing and continuous machining concepts, collision avoidance, and machine kinematics.
- (i) The Contractor will provide hands-on training for machine setup, including work holding, fixturing, tool selection, tool setting, probing (if available), and job setup verification.
- (j) Training shall include instruction on cutting parameters, material selection, feeds and speeds, tool wear monitoring, and surface finish optimization.
- (k) The Contractor will demonstrate and supervise hands-on machining operations, including dry runs, first-article inspection, cycle execution, and job completion.
- (l) Training shall include troubleshooting of common machining and machine faults, including tool breakage, chatter, dimensional inaccuracies, alarms, and corrective actions.
- (m) The Contractor will provide training on routine, preventive, and corrective maintenance, including lubrication systems, coolant management, chip removal, inspection schedules, backup procedures, and consumable replacement.

- (n)** Training shall include basic machine accuracy checks and alignment verification, as applicable to operator-level maintenance.
- (o)** Training shall be delivered through a combination of classroom instruction, live demonstrations, relevant simulations, and supervised practical sessions on the supplied CNC machines.
- (p)** Training duration shall be sufficient to cover all axis configurations and shall be agreed with the client.
- (q)** The Contractor will train participants, including operators, programmers, technicians, or engineers designated by the client.
- (r)** The Contractor will provide complete training materials, including operator manuals, programming guides, documentation, safety instructions, maintenance manuals, sample programs, and digital resources.
- (s)** Training shall be considered successfully completed when participants demonstrate the ability to safely set up, program, and machine parts on milling and lathe.
- (t)** The training shall align with machine warranty and support agreements, and the vendor shall clearly explain post-training technical support, escalation procedures, and response timelines.
- (u)** The Contractor will ensure all CNC machines, tooling interfaces, and software are fully operational during training.

**LOT: 05**  
**CNC 5-Axis Simultaneous Machine (Quantity: 01)**

Name	Unit	Specifications
X/Y/Z axis travel	mm	550/600/400
A/C axis travel	Degree	±120/360
Distance from spindle nose to worktable (when A-axis is at the position of 0 degree)	mm	145-545
Worktable size	mm	Φ400
Max. load	kg	150
<b>Spindle</b>		
Max. spindle speed/taper	rpm	15000/HSK-A63
Spindle power (S1/S6-40%)	KW	15/18
Output torque (S1/S6-40%)	Nm	53/61
<b>Feed system</b>		
X/Y/Z axis rapid feed speed	m/min	30/30/30
Max. cutting feed rate	m/min	10
A/C axis rapid feed speed	RPM/min	20/30
<b>Positioning accuracy/repeated positioning accuracy (ISO 10791-4:1998)</b>		
X/Y/Z axis positioning accuracy	mm	0.008/0.008/0.008
X/Y/Z axis repeated positioning accuracy	mm	0.005/0.005/0.005
A/C axis positioning accuracy	ARCSEC	8/8
A/C axis repeated positioning accuracy		5/5
<b>ATC</b>		
Tool number	pcs	40T
Tool change time (tool-tool)	sec	2.5
Max. tool length	mm	300
Max. tool diameter (no adjacent tool)	mm	Φ75/Φ150
Max. tool weight	kg	8
<b>Machine size</b>		
Height	mm	3275
Floor area (length* width)	mm <sup>2</sup>	3535*3200
Net weight	kg	8500
Power	kw	40
Standard 01 Year Warranty		
Extended Warranty for 02 additional years. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.		

NO.	Configuration	
1	System	SINUMERIK ONE
2	External protection	Full body sheet metal (including water tank)
3	Spindle	HSK-A63 15000rpm Electric Spindle
4	A/C Cradle Turntable	Gear rotation structure (imported DIN5 grade grinding gear)
5	Spindle cooler	Grease lubrication (well known Chinese brand – Gree)
6	AC axis circular grating	HEIDENHAIN
7	X/Y/Z axis grating ruler	HEIDENHAIN
8	Tool magazine	HSK-A63-40T
9	Chip removal system	Chain type chip removal device
10	Guideway	X-axis 35 roller guide, Y-axis 35 roller guide, Z-axis 35 roller guide
11	Screw	X-axis R40x10, Y-axis R40x10, Z-axis R40x10
12	Z-axis balance system	Air pressure balance system (Japan SMC)
13	Electric box constant temperature system	Air conditioner constant temperature
14	Tool setter	Marposs Contact
15	Automatic lubricating device	Grease
16	Processing area cleaning	Air gun, water gun for cleaning
17	Working lamp	LED lighting
18	Warning Light	Three-color warning light
19	Tool box and anchor screws	Tool box and anchor screws
20	Five-axis calibration package	(with 3D probe) Renishaw
21	Hollow lead screw oil cooling	
22	Double-end bearing oil cooling (lead screw)	
23	Lead screw nut oil cooling	
24	Motor plate oil cooling	
25	Oil mist collector	
26	Five Axis collision prevention	

## **FUNCTIONAL REQUIREMENTS:**

### **1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

### **2. Scope**

The contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning, prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation, routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

### **3. Functional Requirements (CNC 5-Axis Simultaneous Machine\_Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.
- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for the CNC Lab.
- (c)** Any allied facility or necessary item (Compressed Air / Pneumatic systems, Pumps, Electric Cabinets & switches, etc) will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.
- (g)** The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer's recommended protocol during the warranty period.

- (h) General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i) The Contractor will provide the required license software, if any, for the supplied equipment.
- (j) The Contractor will assist with any software updates under the warranty period.
- (k) The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l) The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m) The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n) Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for the CNC equipment and lab.
- (o) Pre-Shipment Inspection: The Purchaser will inspect the equipment at the manufacturer's facility before shipment. All of the travel and logistic arrangements for the Purchaser for Pre-Shipment Inspection (PSI) at the facility of manufacture will be the responsibility of the Supplier/contractor.
- (p) Vibration Control System: The system must be supplied with a vibration control system to minimize vibration and noise.
- (q) The Contractor shall provide all the necessary safety equipment (02 sets) for operating the machine.
- (r) Standard tooling set (01 Set) will be provided along with the machine. Details of the tooling set will also be submitted with the bid.
- (s) FEA (Finite Element Analysis) report (if applicable) for the equipment to be supplied must be provided by the Contractor.
- (t) During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (u) Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.
- (v) The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.
- (w) The Contractor will designate a qualified/certified resident operator on site for a period of 01 Year.

**4. Training Requirements (CNC Lathe & Milling Machines Setup on Turnkey Basis)**

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a)** The Contractor will provide comprehensive theoretical and hands-on training on the supplied CNC machines to enable participants to safely operate, program, set up, maintain, and troubleshoot the machines for intended machining operations.
- (b)** Training shall include an overview of CNC machining fundamentals, including machine configuration, axis definitions, work envelopes, spindle specifications, tool changers, fixtures, and differences between milling and lathe machining.
- (c)** The Contractor will provide detailed safety training, including machine safety protocols, emergency stop procedures, safe tool handling, chip and coolant safety, guarding, interlocks, and use of personal protective equipment.
- (d)** Training shall cover machine installation, leveling, power requirements, startup and shutdown procedures, homing, and machine calibration basics.
- (e)** Training shall include instruction on the CNC controller and interface, including control panel functions, offsets, coordinate systems, tool management, alarms, and machine parameters.
- (f)** The Contractor will provide training on CNC programming fundamentals, including G-codes and M-codes, program structure, canned cycles, tool length and work offsets, and program editing.
- (g)** Training shall include all relevant software usage relevant to the supplied machines, including model import, toolpath creation, post-processing, and simulation for milling and lathe machining.
- (h)** Training shall cover machining strategies specific to each axis configuration, including indexing and continuous machining concepts, collision avoidance, and machine kinematics.
- (i)** The Contractor will provide hands-on training for machine setup, including work holding, fixturing, tool selection, tool setting, probing (if available), and job setup verification.
- (j)** Training shall include instruction on cutting parameters, material selection, feeds and speeds, tool wear monitoring, and surface finish optimization.
- (k)** The Contractor will demonstrate and supervise hands-on machining operations, including dry runs, first-article inspection, cycle execution, and job completion.
- (l)** Training shall include troubleshooting of common machining and machine faults, including tool breakage, chatter, dimensional inaccuracies, alarms, and corrective actions.
- (m)** The Contractor will provide training on routine, preventive, and corrective maintenance, including lubrication systems, coolant management, chip removal, inspection schedules, backup procedures, and consumable replacement.
- (n)** Training shall include basic machine accuracy checks and alignment verification, as applicable to operator-level maintenance.
- (o)** Training shall be delivered through a combination of classroom instruction, live demonstrations, relevant simulations, and supervised practical sessions on the supplied CNC machines.
- (p)** Training duration shall be sufficient to cover all axis configurations and shall be agreed with the client.
- (q)** The Contractor will train participants, including operators, programmers, technicians, or engineers designated by the client.
- (r)** The Contractor will provide complete training materials, including operator manuals, programming guides, documentation, safety instructions, maintenance manuals, sample programs, and digital resources.
- (s)** Training shall be considered successfully completed when participants demonstrate the ability to safely set up, program, and machine parts on milling and lathe.
- (t)** The training shall align with machine warranty and support agreements, and the vendor shall clearly explain post-training technical support, escalation procedures, and response timelines.

**(u)** The Contractor will ensure all CNC machines, tooling interfaces, and software are fully operational during training

**LOT: 06**  
**PCB Prototyping Machine – Complete Setup on Turnkey Basis**  
**Quantity: 01**

Sr. No.	Items	Specification
1	PCB Prototyping Center (QTY: 1)	Compact Hybrid Laser and milling spindle based desktop system for highly precise structuring of PCBs in prototyping & small series Working area of Laser: 305 x 229 x 7 mm (12" x 9" x 0.28") Scanner resolution 1 µm (0.04 mil) Scan head repeatability 1.8 µm (0.07 mil) Laser beam dia: 25 ± 2 µm Laser power: 20 W, 1064 nm. Laser pulse frequency: 25 - 400 kHz Milling Spindle Max speed: 100,000 RPM Tool positions: 14 X/Y-drive, Z-drive: 3-phase stepper motors Consisting of; - Fibre Laser in IR range - Laser housing - Granite portal - Vacuum table for material - Vision System, camera supported positioning system with fiducial recognition and autofocus function. Includes built-in PC, Keyboard, Mouse, Monitor and CircuitPro RP Basic software. One Year warranty.
2	Air Compressor (QTY: 1)	Including condensate separator and special filter, Compressor capacity 300 l/min, condensate separator 500 l/min
3	Vacuum Cleaner (QTY: 1)	High power extraction system, complete with all filters
4	Digital Slide Gauge (QTY: 1)	To measure material thickness, Metric or Imperial switchable.
5	Measuring Microscope (QTY: 1)	Magnification factor x100, with metric scale and lighting
6	Starter Tool set (QTY: 1)	Starter Tool set compatible with the setup
7	Base Plate (QTY: 1)	FR4, A4, 35/35µm Cu 1.5mm thickness, Pack of 10 pieces
8	Base Plate (QTY: 1)	FR4, A4, 18/18µm Cu 1.5mm thickness, Pack of 10 pieces
9	Tools & Accessories (QTY: 1)	5 High-precision Sinter plate 315 x 239 x 1.5 mm, white - 10 Base Plate (blank PCB) FR4, 229x305 mm, 0/35µm Cu

Sr. No.	Items	Specification
		<ul style="list-style-type: none"> <li>- 5 Base Plate (blank PCB) FR4, 229x305 mm, 35/35µm Cu</li> <li>- 5 Base Plate (blank PCB) FR4, 229x305 mm, 18/18µm Cu</li> <li>- 5 Micro Cutter with distance ring 1/8", 36 mm, d=0.1 - 0.15 mm</li> <li>- 5 End Mill with distance ring 1/8", 36 mm, d = 1.0 mm</li> <li>- 2 End Mill with distance ring 1/8", 36 mm, d = 2.0 mm</li> <li>- 2 End Mill with distance ring 1/8", 38 mm, d = 2.0 mm</li> <li>- 1 Special tape &amp; 1 PCB cleaner</li> <li>- 1 Tool Set 1/8" shaft with distance rings (# 129103) consisting; <ul style="list-style-type: none"> <li>-- 10 Universal Cutter 1/8", 36mm, 0.2 - 0.5mm (8 – 20 mil)</li> <li>-- 2 Micro Cutter 1/8", 36mm, 0.1 - 0.15mm (4 – 6 mil)</li> <li>-- 1 End Mill 1/8", 36mm, d = 0.8 mm (31 mil)</li> <li>-- 2 each End Mills 1/8", 36mm, d=1.0mm (39mil) &amp; 2.0mm</li> <li>-- 1 each End Mills 1/8", 38mm d= 1.0mm (39mil) &amp; 2.0mm</li> <li>-- 2 each Contour Routers 38mm, 1.0mm (39mil) &amp; 2.0mm</li> <li>-- 2 each Drills 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.5, 2.0 &amp; 3.0mm</li> <li>-- 1 each Spiral Drills 1.2, 1.4, 1.6, 1.8mm</li> </ul> </li> </ul>
10	Contour Routers (QTY: 3 packs)	<p>Consists of one pack each with d = 0.5mm, 1.0mm &amp; 2.0mm Shank 1/8", 38 mm long (each pack consists of 10 pieces)</p>
11	Drill Bits (QTY: 20 packs)	<p>Shank 1/8", 38mm (each pack consists of 10 pcs), Set of following sizes 0.4, 0.5, 0.6, 0.7, 0.8, 0.85, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 2.0, 2.2, 2.4, 2.95 and 3.0 mm</p>
12	Through Hole Plating (QTY: 1)	<p>System for through-hole plating with conductive paste consisting of;</p> <ul style="list-style-type: none"> <li>- 1 Pair of work glove</li> <li>- 1 Chemical-resistant glove pack (pack of 100 pieces)</li> <li>- 1 Screen printing squeegee (60 mm)</li> <li>- 1 Foam rubber roller with handle</li> </ul>

Sr. No.	Items	Specification
		<ul style="list-style-type: none"> <li>- 1 Pro Conduct Cleaner, 1 Abrasive Pad, 1 Cleaning Brush</li> <li>- 5 Base material FR4 35/35μm</li> <li>- 5 Base material FR4 18/18μm</li> <li>- 10 Filter Mat</li> <li>- 10 Cover Film</li> <li>- 20 Protective Film</li> <li>- 20 Paste packs of 2.9 grams (Shelf life: 6 months at 5°C)</li> <li>- 1 Honeycomb Plate</li> </ul>
13	Desktop Vacuum Table (QTY: 1)	Compatible with the system
14	Hot Air Oven (QTY: 1)	Harden paste through-hole plating, solder resist masks, conductive paste and legend prints
15	Solder Resist Mask (QTY: 1)	System to apply solder resist masks on prototype PCBs Set sufficient for 10 double sided PCBs in the dimension of 9"x12". Hardware requirement: Laser Printer with min. 1200 dpi
16	Silkscreen (QTY: 1)	System to apply legend print on prototype PCBs Set sufficient for 10 double sided PCBs in the dimension of 9"x12". Hardware requirements: Laser Printer with min. 1200 dpi
17	LED UV- Exposure unit (QTY: 1)	Exposure unit to expose solder masks and legend prints
18	Galvanic Through hole plating (QTY: 1)	Microprocessor controlled Galvanic through-hole plating system for double sided boards including chemical tin with 6 basin with shiftable reverse pulse plating technology, Integrated micro-controller, menu-controlled user guidance via 7" touch display, Gross Material size: 230 x 305 mm (9" x 12"), PCB size (net): 220 x 295 mm (8.5" x 11.6"), Weight: 77Kg, incl. anode plates, Electrical data: 115V/230V, 50-60Hz, max 1KW
19	Set of Chemical (for Galvanic through hole plating) (QTY: 1)	Via Cleaner Chemicals <ul style="list-style-type: none"> <li>- Cleaner 110, 5 Liters</li> <li>- Cleaner 210, 5 Liters</li> <li>- Activator 310, 5 Liters</li> <li>- Copper Plater 400,15 Liters</li> <li>- Shine 410, 0.5 Liter</li> </ul>
20	Electroless tin liquid (QTY: 1)	2 x 5 liters tin solution for closed and solder able surface finish
21	Multipress (QTY: 1)	Multilayer press for the production of 4 to 10 Layer PCBs

Sr. No.	Items	Specification
		Freely programmable via graphical user interface (GUI) Stand-alone design on wheels (floor standing unit) Size of Base material (gross): 229 x 305 mm (9" x 12") Maximum PCB size (net): 200 x 275 mm (7.9" x 10.8") Maximum press force: 350 N/cm <sup>2</sup> Maximum temperature: 320°C Electrical Data: 230V, 1 Ph, 2.3 kW approx.
22	6-Layer Multilayer set for MultiPress (QTY: 1)	Size of material: 229 mm x 305 mm (9" x 12") Base material for 10 multilayer PCBs, consisting of; - 20 Laminate multilayer 0/5µm (229x305x0.2mm) w/protection foil - 60 Prepreg (275 x 200 x 0.1 mm) (shelf life: 3 months when stored at 5°C) - 5 Pressing cardboard cushion (229 x 305 mm) - 20 Base material FR4 18/18µm Cu (229 x 305 x 0.36 mm) - 1 Pack seal rings
23	Warranty	Standard 01 Year Warranty
24	Extended Warranty	Extended Warranty for 02 additional years. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

## **FUNCTIONAL REQUIREMENTS:**

### **1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

### **2. Scope**

The contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning, prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation,

routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

**3. Functional Requirements (PCB Prototyping Machine – Complete Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.
- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for the PCB Prototyping Lab.
- (c)** Any allied facility or necessary item (Compressed Air / Pneumatic systems, Pumps, Electric Cabinets & switches, etc) will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/ housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.
- (g)** The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer's recommended protocol during the warranty period.
- (h)** General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i)** The Contractor will provide the required license software, if any, for the supplied equipment.
- (j)** The Contractor will assist with any software updates under the warranty period.
- (k)** The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l)** The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m)** The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n)** Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for the CNC equipment and lab.
- (o)** The required software for designing and fabricating PCBs will be provided by the Contractor.
- (p)** Pre-Shipment Inspection: The Purchaser will inspect the equipment at the manufacturer's facility before shipment. All of the travel and logistic arrangements for the Purchaser for Pre-Shipment Inspection (PSI) at the facility of manufacture will be the responsibility of the Supplier/contractor.

- (q) The Purchaser will assist in preparing the end-user certificate and export license. Any other documentation and NOCs required for import of the PCB prototyping equipment will be the responsibility of the Contractor.
- (r) The Contractor shall provide all the necessary safety equipment (02 sets) for operating the machine.
- (s) Standard tooling set (01 Set) will be provided along with the machine. Details of the tooling set will also be submitted with the bid.
- (t) During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (u) Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.
- (v) The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.
- (w) The Contractor will designate a qualified/certified resident operator on site for a period of 01 Year.

**4. Training Requirements (PCB Prototyping Machine – Complete Setup on Turnkey Basis)**

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a) The Contractor will provide comprehensive theoretical and hands-on training on PCB design, fabrication, assembly, and testing processes relevant to the supplied PCB equipment, software, or manufacturing solution.
- (b) Training shall include an overview of PCB fundamentals, including single-layer, double-layer, and multi-layer PCBs, board materials, copper thickness, surface finishes, and industry standards.
- (c) The Contractor will provide safety training related to PCB work, including electrical safety, ESD (electrostatic discharge) protection, safe handling of tools and equipment, chemical safety (if applicable), and proper use of personal protective equipment.
- (d) Training shall cover PCB design software installation and configuration, schematic capture, component library management, and footprint creation.
- (e) Training shall include PCB layout practices, including component placement, routing techniques, design rules, impedance control (basic level), grounding, power distribution, and EMI/EMC considerations.
- (f) The Contractor will train participants on preparing prototyping files on all related software.
- (g) Training shall include PCB fabrication processes, including board preparation, etching or milling, drilling, plating concepts, solder mask application and surface finishing (process overview or hands-on as applicable).

- (h)** The Contractor will provide training on PCB assembly techniques, including manual soldering, reflow soldering, wave soldering (if applicable), component placement, and handling of through-hole and surface-mount devices.
- (i)** Training shall include soldering best practices, inspection methods, solder joint quality criteria, and rework techniques at a basic operational level.
- (j)** Training shall cover testing and inspection methods, including visual inspection, continuity testing, basic functional testing, and use of test equipment.
- (k)** The Contractor will train participants on common PCB design, fabrication, and assembly defects, including causes, prevention methods, and corrective actions.
- (l)** Training shall include routine maintenance and calibration of any supplied PCB-related equipment, including cleaning, consumable replacement, and preventive maintenance schedules.
- (m)** The Contractor will provide hands-on exercises where participants design a basic PCB, generate manufacturing files, fabricate or assemble (if applicable), and test a sample board.
- (n)** Training duration shall be sufficient to cover the full scope and shall be agreed with the client.
- (o)** The Contractor will train participants, including designers, technicians, or engineers designated by the client.
- (p)** The Contractor will provide complete training materials, including design manuals, software guides, fabrication and assembly process documentation, best-practice checklists, and digital training content.
- (q)** Training shall be considered successfully completed when participants demonstrate the ability to design a basic PCB, prepare manufacturing files, assemble components, and perform basic testing independently.
- (r)** The training shall align with warranty and technical support agreements, and the vendor shall explain post-training support procedures and escalation channels.
- (s)** The Contractor will ensure all supplied PCB equipment and software are fully operational during training.

**LOT: 07**  
**AR/VR Lab Setup on Turnkey Basis**

Sr. No.	Item	Description
1	HTC Vive Pro 2 (QTY: 01)	Resolution: 2448 x 2448 pixels per eye (4896 x 2448 total), Refresh Rate: 120Hz, Field of View: 120° horizontal, Panel Type: Dual LCD, Integrated Hi-Res certified headphones with 3D spatial sound, Dual integrated microphones, Steam VR Tracking 2.0 compatible, G-Sensor, Gyroscope, Proximity Sensor, IPD Sensor, Headset: USB Type-C, Controllers: Micro-USB for charging, Adjustable IPD (Interpapillary Distance) dial control, Adjustable head strap for balanced weight distribution, Glasses-compatible design, Includes two SteamVR Base Stations, Includes two 6-DoF (degrees of freedom) controllers with multi-function trackpads and triggers, Processor: Intel Core i5-4590 / AMD Ryzen 1500 or newer, Graphics Card: NVIDIA GTX 1060 / AMD RX 480 or newer (RTX 20 series or newer for Full Resolution mode), Memory: 8GB RAM or higher, Video Out: DisplayPort 1.4 with DSC for full resolution.
2	Apple Vision Pro (Qty : 01)	Display: Micro-OLED display system with 23 million pixels, 7.5-micron pixel pitch, 92% DCI-P3 color gamut, supported refresh rates: 90Hz, 96Hz, 100Hz, and 120Hz, Processors: Apple M5 chip (10-core CPU with 4 performance cores and 6 efficiency cores, 10-core GPU), Apple R1 chip for real-time sensor input processing. Memory and Storage: 16GB unified memory, Storage options: 256GB, Cameras: Stereoscopic 3D main camera system Spatial photo and video capture, 18mm, f/2.00 aperture, 6.5 stereo megapixels, Sensors: Two high-resolution main cameras, Six world-facing tracking cameras, Four eye-tracking cameras, TrueDepth camera, LiDAR Scanner, Ambient light sensor, Flicker sensor, Audio: Spatial Audio with dynamic head tracking, Personalized Spatial Audio and audio ray tracing, Six-mic array with directional beamforming, Connectivity: Wi-Fi 6 (802.11ax), Bluetooth 5.3, Operating System: visionOS, Eye tracking and hand gesture recognition, Iris-based biometric authentication (Optic ID), Support for keyboards, trackpads, and game controllers, Compatible with prescription inserts from Zeiss
2	KatVR Mini S Treadmill (QTY: 01)	Supported Headsets: All SteamVR-supported headsets (Oculus, HTC Vive, Valve Index, etc.), User Height: 1.4m - 1.95m, Maximum Weight: 130kg, Product Weight: 106kg, Product Dimensions: 1.535m (length) x 1.170m (width) x 1.476m (height), Footprint: 1.37 square meters, Power: 100V - 240V, 35W rated power

Sr. No.	Item	Description
3	Full Body WEARABLE SUIT (QTY: 05) Size: Small 02, Medium 02, Large 02)	Sensors: 19x 9-DOF (degrees of freedom) IMU (Inertial Measurement Unit) sensors, providing 3D orientation accuracy of $\pm 1$ degree, Connectivity: WiFi (2.4 & 5 GHz, 802.11ac) for wireless streaming and data transfer, Frame Rate: Up to 200 FPS (frames per second), Latency: Approximately 15 ms latency on a standard WiFi router, range: Up to 100 meters' range, Power: Powered by an external power bank, Finger Tracking: Ready for optional Smart gloves for finger and hand tracking, Sizes: Available in S, M, L, and XL sizes. , Material: Durable nylon-based fabric.
4	SMART GLOVES (QTY:03 Pairs)	Sensors: 7 IMU + EMF sensors per glove, utilizing a proprietary hybrid sensor fusion technology, Frame Rate: 100 fps, enabling real-time, high-speed motion capture with minimal latency, Tracking: Absolute global position tracking for each finger, providing accurate and consistent hand motion capture regardless of body movement or orientation, Occlusion Handling: Designed to minimize occlusion issues, ensuring accurate tracking even when fingers overlap or are hidden. Battery Life: Unlimited operation time when paired with 5000mAh power banks, providing 6 hours of battery life. Materials: Made from textile and leather for a comfortable and durable fit. Wireless: Wireless tracking via WiFi, with a range limited by the router.
5	COILPRO (MOCAP DEVICE) (QTY:02)	Tracking Radius: 5 meters (radius). Tracking Technology: EMF (Electromagnetic Field) combined with IMU (Inertial Measurement Unit) sensors. Frequency: Operates in the lower frequency end of the electromagnetic spectrum, around 20kHz. Safety Compliance: Certified for public exposure to electromagnetic fields (EMF). Interference: Can be affected by single coil guitars, telecoil receivers, and ferrous metals. Transition: Seamlessly switches to IMU tracking when outside the EMF field. Power: Requires a power cord (no battery). Integration: Works with Smartsuit Pro II and Smartgloves for absolute position tracking and data visualization in Rokoko Studio. Features: No drift, no occlusion, accuracy over time, seamless IMU transition, and no data loss. Mounting: Can be mounted on tripods, hung from the ceiling, or placed on a desk.
6	HEAD CAM (QTY:03)	Camera: High-resolution 60fps camera. Resolution: 1600x1200px, 1280x960px, or 1024x768px. Frame Rate: 60FPS or 30FPS. LED Lights: Dimmable. Microphone: Built-in. Weight: 240 grams. Integration: Compatible with Windows, macOS, and Android animation workflows.
7	PICO 4 Headset	<b>VR Headset:</b>

Sr. No.	Item	Description
	(Qty : 01)	<p>Snapdragon® XR2 Gen 2, 12 GB + 256 GB, LPDDR5 + UFS 3.1, 2.4 GHz proprietary protocol, Compatible with PICO 4 Ultra Enterprise / PICO 4 Enterprise / PICO Neo3 Series, 32 MP color seethrough camera ×2, iToF depth-sensing camera ×1, Environment tracking camera ×4, 2.56-inch screen ×2, Resolution: 2160 × 2160 (× 2), 1200 PPI (pixels per inch), Rendering resolution: 1920 × 1920 (× 2), Refresh rate: 90 Hz, Pancake lenses, 105° FoV, 20.6 average PPD (pixels per degree), 22.5 central area PPD, 58 mm–72 mm seamless pupil distance adjustment, Dual stereo speakers, 4 microphones and supports spatial audio recording, 5700 mAh rated capacity, 5770 mAh typical capacity, Supports QC 4.0 / PD 3.0, 45W fast charger, Controller: AA batteries ×2</p> <p><b>Motion Tracker:</b> 2.4 GHz proprietary protocol, Compatible, Full-Body Tracking, Object Tracking, Accelerometer, Gyroscope, Geomagnetic sensor, Active infrared sensor, 220 mAh rated capacity, USB-C charging port, 25+ hours of battery life</p>
8	High End Rendering PC's (QTY:2)	Intel core i9 Processor, Nvidia 5060 Graphics Card, MSI PRO DDR 5 Motherboard, 27inch FHD Monitor, 850 Watt Power Supply, SSD 1TB M.2 x 2, HDD 2TB x 1, DDR 5 32 GB, PRO Grade Casing
9	360 Camera (QTY:1)	<p>Sensor size: 1/1.28-inch. Lens: f/2.0, focal length ~6 mm. Interchangeable lens design. 360° video highest resolution: 8K 7680×3840 @ 30/25/24 fps. 360° 5.7K+ video: 5760×2880 @ 30/25/24 fps. 360° 5.7K video: 5760×2880 @ 60/50/48/30/25/24 fps. 360° 4K video: 3840×1920 @ 20/100/60/50/48/30/25/24 fps. 4K: 3840×2160 @ 60/50/30/25/24 fps. 2.7K: 2720×1536 @ 60/50/30/25/24 fps. 1080p: 1920×1080 @ up to 120/100/60/50/30/25/24 fps. Photo resolution: Approx. 72 MP (11904×5952) for 360° mode; approx. 18 MP (5888×2944) in single-lens mode. Max video bit-rate: Up to ~180 Mbps. Photo shutter speed: 1/8000 s to 120 s. ISO range: 100-6400. Dimensions: 46 × 124.5 × 38.2 mm. Weight: ~200 g, Battery: 2400 mAh. Charging: Up to ~80% in 20 minutes with appropriate charger (9V/3A). Continuous recording time (lab test, ambient ~25 °C): 8K30fps: ~93 minutes. 5.7K30fps: ~135 minutes. 5.7K24fps in ~208 minutes. Waterproof: Up to 15 m without additional housing. Operating temperature: -20 °C to 40 °C. microSD card slot: Compatible with UHS-I V30 speed class or higher. USB: USB-C 3.0. WiFi: 802.11 a/n/ac. Bluetooth: BLE 5.2.</p>

Sr. No.	Item	Description
10	Phone 1 (QTY:1)	Aluminium unibody design, covered with Ceramic Shield 2. Dimensions: Width 71.9 mm, Height 150 mm, Depth 8.75 mm, Rated IP68. “Super Retina XDR” OLED, with curved corners, all-screen design. 6.3-inch diagonal, 2622 × 1206 pixels at ~460 ppi. Up to 120 Hz with Always-On display. Typical brightness 1000 nits; HDR peak 1600 nits; outdoor peak up to 3000 nits. Contrast ratio ~2,000,000:1 (typical). Wide colour (P3), True Tone, Haptic Touch. Chip: A19 Pro (3nm process) — 6-core CPU, 6-core GPU, 16-core Neural Engine, hardware-accelerated ray tracing. N1 wireless networking chip, Wi-Fi 7 (802.11be) with 2×2 MIMO, Bluetooth 6, Thread, Ultra Wideband (2nd gen). Storage 512 GB, Rear: “48MP Pro Fusion” camera system Front: TrueDepth camera with “Center Stage” support, Battery life: Up to ~33 hours video playback; streamed video up to ~30 hours. Fast-charge via USB-C: Up to 50% in ~20 minutes with 40 W adapter or higher, MagSafe wireless charging / Qi2: Up to 25 W wireless.
11	Phone 2 (QTY:1)	6.9-inch Dynamic LTPO AMOLED 2X, 1440 × 3120 pixels, 120 Hz refresh rate, peak brightness ~2,600 nits. Snapdragon 8 Elite for Galaxy (3 nm) octa-core CPU (2×4.47 GHz + 6×3.53 GHz) + Adreno 830 GPU. 12 GB RAM with storage 512 GB, 200 MP main sensor + 50 MP ultra-wide + 50 MP telephoto (5× optical) + 10 MP telephoto (3× optical) Battery: 5,000 mAh, with fast wired charging (45 W) and wireless charging support. Build & Design: Dimensions ~162.8 × 77.6 × 8.2 mm, weight ~218 g. Frame uses titanium, glass front/back with advanced protective glass. IP68 water/dust resistance. Android 15, One UI 7; up to 7 years of OS and security updates.
12	Warranty	Standard 01 Year Warranty
13	Extended Warranty	Extended Warranty for 02 additional years. Year-wise Extended Warranty price must be quoted separately in the Financial Bid Form.

### **FUNCTIONAL REQUIREMENTS:**

#### **1. Introduction**

The **Establishment of Makerspace Punjab** is a Government of Punjab initiative aimed at developing a centralized, state-of-the-art innovation and prototyping facility at **Arfa Software Technology Park, Lahore**. The project is designed to support youth, academia, startups, and industry by providing access to advanced manufacturing, digital fabrication, and emerging technology tools. The makerspace will promote innovation, applied research, skills development, and rapid prototyping, contributing to economic growth, industrial competitiveness, and workforce readiness in Punjab.

#### **2. Scope**

The Contractor shall be responsible for the end-to-end supply of equipment, including submission of detailed technical specifications, installation drawings, utility requirements, and commissioning,

prerequisites necessary for proper deployment and operation of the equipment. The scope includes procurement, delivery, installation, testing, and commissioning of all supplied equipment, along with any associated supporting infrastructure, to ensure full operational readiness in accordance with approved standards and project requirements. The Contractor shall also provide comprehensive technical support and hands-on training for designated staff, covering operation, routine maintenance, safety procedures, and basic troubleshooting of the supplied equipment. In addition, the Contractor shall ensure the implementation of all relevant operational, safety, and regulatory compliance measures, including standard operating procedures (SOPs), safety guidelines, and best practices, to enable effective, safe, and sustainable use of the equipment and the facility over its operational lifecycle.

### **3. Functional Requirements (AR/VR Setup on Turnkey Basis)**

- (a)** The Contractor will be responsible for supply, on-site delivery, installation, testing, commissioning, and after-sales support of the equipment.
- (b)** The Contractor will be responsible for providing comprehensive technical details along with housing details of the equipment and submitting a plan for the placement of the supplied equipment in accordance with the designated space for the AR/VR lab.
- (c)** Any allied facility or necessary item will be supplied with the equipment to make it operational and fully functional. All the equipment will be required and installed as a turnkey solution covering all the required items necessary for making the equipment operational and running.
- (d)** The Contractor will be responsible for providing the working details, utility, and civil work/housing requirements against the equipment/items to be supplied.
- (e)** Arrangement of all necessary documentation, including NOCs, end-user certificates, or any other documents, will be the responsibility of the Contractor.
- (f)** The Contractor will be responsible for periodic maintenance as recommended by the manufacturer during the warranty period to the satisfaction of the purchaser. All consumables, items, and parts required for periodic maintenance and servicing will be provided by the Contractor.
- (g)** The Contractor will conduct periodic maintenance for the supplied equipment to inspect system performance, update firmware/software, and recommend optimizations according to the manufacturer's recommended protocol during the warranty period.
- (h)** General Tool kit or accessories required, if any, for general maintenance and troubleshooting of the equipment shall be supplied by the Contractor along with the equipment within the quoted price.
- (i)** The Contractor will provide the required license software, if any, for the supplied equipment.
- (j)** The Contractor will assist with any software updates under the warranty period.
- (k)** The Contractor will provide a guarantee for the through-life supportability of the equipment.
- (l)** The Contractor will provide comprehensive technical documentation, including system architecture, configuration guides, video tutorials, and user manuals. The user interface, manuals, tutorials, instructions, and displays must be in the English language.
- (m)** The Contractor will give full access credentials, license keys, passwords, and SDKs for the interface required for independent operations.
- (n)** Complete training of the equipment will be provided by the Contractor as per the plan and requirements as mentioned in the training section requirement for the AR/VR Lab Setup.
- (o)** During the warranty period, the Contractor will provide free-of-cost repair services and necessary spare parts on site.
- (p)** Warranty for the faulty equipment will be extended for the period from the occurrence of the fault till its rectification. Warranty will freeze for the entire machine/item in case any component becomes faulty.

- (q) The Contractor will replace the faulty hardware component within 48 hours of complaint registration during the warranty period. The Contractor must ensure the availability of critical/essential parts stock within the warranty period.

**4. Training Requirements (AR/VR Lab Setup on Turnkey Basis)**

The Contractor will provide comprehensive training to ensure that PITB personnel can operate, administer, and maintain the supplied equipment effectively as per the company protocols. The proposed training schedule is given below;

Sr.	Item	Description
1	Training Duration	5 Days (min)
2	Number of Participants	4-5 participants

The training requirements are given below:

- (a) The Contractor will provide comprehensive theoretical and hands-on training on the supplied AR/VR system to enable participants to confidently operate, manage, and utilize the technology for intended applications.
- (b) Training shall cover an overview of AR/VR concepts, system architecture, hardware components (headsets, controllers, sensors, cameras, workstations), and supported software platforms.
- (c) The Contractor will provide detailed safety and usage training, including safe use of mounted equipment, ergonomic considerations, motion sickness prevention, electrical safety, device handling, storage, and hygiene protocols for shared devices.
- (d) Training shall include setup and configuration of AR/VR hardware, including initial setups, installation, calibration, tracking setup, room-scale configuration, boundary settings, and performance optimization.
- (e) The Contractor will provide training on AR/VR software, including installation, licensing, user account management, content loading, and system updates.
- (f) Training shall cover content usage and basic content creation or customization, including importing 3D models, configuring scenes, interactions, animations, and basic scripting or workflow customization (as applicable to the supplied system).
- (g) The Contractor will demonstrate and supervise hands-on operation, including launching applications, navigating virtual environments, interacting with virtual objects, multi-user configurations.
- (h) The Contractor will train participants on routine maintenance, device care, firmware and software updates, battery management, storage, cleaning, and preventive maintenance procedures.
- (i) Training shall include troubleshooting common hardware, software, and user-experience issues, including tracking loss, performance issues, connectivity problems, application crashes, and recommended corrective actions.
- (j) The training shall be delivered through a combination of classroom instruction, live demonstrations, guided practical sessions, and hands-on exercises using the supplied AR/VR equipment.
- (k) Training duration shall be adequate to fully cover the scope and the schedule shall be finalized in coordination with the client after system delivery and installation.
- (l) The Contractor will train participants, including operators, trainers, developers, or end-users, as designated by the client.

- (m) The Contractor will provide complete training materials, including user guides, setup manuals, software documentation, best-practice guides, sample projects, and digital copies of training content.
- (n) Training shall be considered successfully completed when participants demonstrate the ability to independently set up, operate, maintain, and troubleshoot the AR/VR system at a basic operational level.
- (o) The training shall align with system warranty and support agreements, and the vendor shall clearly explain post-training technical support channels, escalation procedures, and response timeliness.

**Note: Floor Plan is attached at Annex-A as reference for all lots Lab Setup.**

## Section-IV: Bid Data Sheet

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB) Section II. Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

<b>A. Introduction</b>		
<b>BDS Clause Number</b>	<b>ITB Number</b>	<b>Amendments of, and Supplements to, Clauses in the Instruction to Bidders</b>
1.	2.1.1	<p>Name of Procuring Agency: <b>PUNJAB INFORMATION TECHNOLOGY BOARD</b></p> <p>The subject of procurement is: <b>PROCUREMENT OF LAB EQUIPMENT FOR THE ESTABLISHMENT OF MAKERSPACE PUNJAB – EGOV-24</b></p> <p>Period for delivery, installation and commissioning of goods: Delivery schedule is attached at <a href="#">section VII (7.1)</a></p>
2.	2.1.2	<p>Financial year for the operations of the Procuring Agency: <b>2025-26</b></p> <p>Name of Project/ Grant (Development or Non-Development): <b>Makers Space</b></p> <p>Name of financing institution: <b>Govt. of Punjab</b></p> <p>Name and identification number of the Contract: <b>N/A</b></p>
3.	2.1.3 (v)	<p>Maximum number of members in the joint venture, consortium or association shall be: [03]. J.V. form 8.2 should be followed.</p>
<b>B. Bidding Documents</b>		
4.	2.2.2	<p>The address for clarification of Bidding Documents is:</p> <p><b><u>PRIMARY CONTACT (For Technical Clarifications)</u></b>  <b>Tayyab Mehmood</b>                      Network Support Officer (Technical Procurement)  <b>Email:</b> <a href="mailto:tayyab.mehmood@pitb.gov.pk">tayyab.mehmood@pitb.gov.pk</a>                      11<sup>th</sup> Floor, Arfa Software Technology Park, 346-B, Ferozpur Road, Lahore, Pakistan.</p> <p><b><u>SECONDARY CONTACT (For Commercial Clarifications)</u></b>  <b>Sohaib Ejaz</b></p>

		Program Officer (Procurement) Email: <a href="mailto:sohaib.ejaz@pitb.gov.pk">sohaib.ejaz@pitb.gov.pk</a> 11 <sup>th</sup> Floor, Arfa Software Technology Park, 346-B, Ferozepur Road, Lahore, Pakistan
5.	2.2.2	Pre-Bid Meeting: <b>DATE &amp; TIME: 12 January, 2026 @ 11:00 AM</b> <b>VENUE: 11<sup>th</sup> FLOOR, ARFA SOFTWARE TECHNOLOGY PARK (ASTP), 346-B, FEROEZPUR ROAD, LAHORE.</b>
6.	2.3.9	The number of E-Bid for each Lot separately to uploaded on E-PADS is in one original.
<b>C. Bid Price, Currency, Language and Country of Origin</b>		
7.	2.3.1	<i>Language of the Bid: <b>English</b></i>
8.	2.3.4	The price quoted shall be fixed in <b>PAK RUPEES</b> inclusive of all applicable taxes and duties, on DDP destination basis.
9.	2.1.4 (ii)	Country of origin: <i>All eligible countries to do business in Pakistan by the law of Government of Pakistan.</i>
<b>D. Preparation and Submission of Bids</b>		
10.	2.2.2	<b>The complete Bids must be submitted online on e-Procurement System (EPADS) website i.e.,</b> <a href="https://punjab.eprocure.gov.pk">https://punjab.eprocure.gov.pk</a>
11.	2.4.2	The deadline for E-bid submission is: <b>26 January, 2026 @ 11:00 AM</b>
12.	2.5.1	Time, date/ Month/ Year, and place for E-bid opening. <b>26 January, 2026 @ 11:30 AM</b> <b>PUNJAB INFORMATION TECHNOLOGY BOARD (PITB)</b> 11 <sup>th</sup> FLOOR, ARFA SOFTWARE TECHNOLOGY PARK (ASTP), 346-B, FEROEZPUR ROAD, LAHORE, PAKISTAN PHONE: (+ 92) (42) (99000000), FAX: (+92) (42) (99232123) URL: <a href="http://WWW.PITB.GOV.PK">WWW.PITB.GOV.PK</a>
13.	2.6.2	Amount of Performance Guarantee is: <b><u>10% OF THE CONTRACT AMOUNT</u></b>
14.	2.3.8	Bid validity period after opening of the E-Bid is: <b><u>NINETY (90) DAYS.</u></b>
15.	2.3.6	The samples (if demanded) of the items provided by the bidders will be evaluated in conjunction with the specification provided in SECTION – III and approved by the evaluation committee of the procuring agency. The awardee will be required to deliver the items as per approved sample.
<b>E. Opening and Evaluation of Bids</b>		
16.	2.5.1	The E-Bid opening shall take place at: <b>PUNJAB INFORMATION TECHNOLOGY BOARD (PITB)</b> 11 <sup>th</sup> FLOOR, ARFA SOFTWARE TECHNOLOGY PARK (ASTP), 346-B, FEROEZPUR ROAD, LAHORE, PAKISTAN

		PHONE: (+ 92) (42) (99000000), FAX: (+92) (42) (99232123) URL: <a href="http://WWW.PITB.GOV.PK">WWW.PITB.GOV.PK</a>
<b>17.</b>	<b>2.5.7</b>	The currency that shall be used for E-Bid evaluation is: <b>PAK RUPEES</b>
<b>F. Bid Evaluation Criteria</b>		
<b>18.</b>	<b>2.5.8</b>	Criteria to Bid evaluation is presented below:

## EVALUATION CRITERIA (TECHNICAL PROPOSAL):

Category	Description	Requirement
<b>Legal (Mandatory)</b>	<p>Copy of Registration with Income Tax Authorities (National Tax Number NTN) – Registered for at least <b>for Last 03 years</b> From the date of bid submission.</p> <p>Copy of Registration with relevant Sales Tax Authorities</p> <p>Copy of Income Tax &amp; Sales Tax (Operative Status)</p> <p>Affidavit (as per <b>form 8.6</b>) on non-judicial Stamp Paper of Rs. 100/- or Official Letter-head:</p> <ul style="list-style-type: none"> <li>(i) The firm is not blacklisted by the procuring agency and PPRA.</li> <li>(ii) The documents/photocopies provided by the firm with its Bid are authentic. (In case of any fake/bogus document found at any stage of the procurement process, the firm shall be black listed as per Rules / Laws.)</li> <li>(iii) The firm certifies the correctness of information.</li> <li>(iv) The firm complies with Section – III “Technical Specifications”, and Section – VII “Schedule of Requirements” of the Bidding Document.</li> <li>(v) The firm complies with all terms &amp; conditions mentioned in the Bidding Documents.</li> <li>(vi) The firm complies that its Bid is valid for 90 days after opening of the E-Bid.</li> <li>(vii) The firm certifies that if awarded the contract, the procuring agency may deduct all the relevant taxes and duties, from its invoice, as applicable.</li> <li>(viii) The firm undertakes that it shall provide the Performance Guarantee and sign the formal contract within fifteen (15) days of the issuance of notification of award/Letter of Intent (LOI).</li> </ul>	Required
<b>Technical (Mandatory)</b>	<p>Original of Bid Security instrument as prescribed in the Bid Security Form.</p> <p>Authorization from the Principal / Manufacturer / Authorized Dealer for all LOTs;</p> <p>In case of the dealer, the following two documents are required:</p> <ol style="list-style-type: none"> <li>1. Authorization from principal to dealer, and</li> <li>2. Certificate from the dealer to the Bidder</li> </ol>	Required
	<p>Affidavit on non-judicial Stamp Paper of Rs. 100/- or Official Letter-head confirming that;</p> <ul style="list-style-type: none"> <li>• All necessary import / export documentation, NOC’s, duties/levis, and end user certificates, as applicable, will be the responsibility of bidder /contractor.</li> <li>• The bidder / contractor shall provide all import documents / export licenses to the Purchaser, as applicable.</li> </ul>	
<b>Past Experience (Mandatory)</b>	<p><b><u>Relevant Experience &amp; Value of Projects (Last 03 Years)</u></b></p> <p>Value of projects/assignments either completed or in-process for last 03 years, which are similar in nature against each lot (LOT#1: 3D Printing,</p>	Required

Category	Description	Requirement																
	LOT#2: Robotics, LOT#3: CNC Machines, LOT#4: Fiber Laser Machine, LOT#5: 5-Axis Simultaneously CNC, LOT#6: PCB Machines, LOT#7: AR/VR setup):  (Verifiable through relevant purchase orders / contracts) <table border="1" data-bbox="347 595 1233 965"> <thead> <tr> <th>Lot No.</th> <th>Amount in PKR</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>10 million and above</td> </tr> <tr> <td>02</td> <td>10 million and above</td> </tr> <tr> <td>03</td> <td>25 million and above</td> </tr> <tr> <td>04</td> <td>05 million and above</td> </tr> <tr> <td>05</td> <td>65 million and above</td> </tr> <tr> <td>06</td> <td>30 million and above</td> </tr> <tr> <td>07</td> <td>05 million and above</td> </tr> </tbody> </table>	Lot No.	Amount in PKR	01	10 million and above	02	10 million and above	03	25 million and above	04	05 million and above	05	65 million and above	06	30 million and above	07	05 million and above	
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07	05 million and above																	
<b>Financial (Mandatory)</b>	<b>Turnover (Last 03 Years)</b> Value of Cumulative Turnover for last 03 years:  (Verifiable through Audit statement of last three financial years) <table border="1" data-bbox="376 1171 1203 1541"> <thead> <tr> <th>Lot No.</th> <th>Amount in PKR</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>40 million and above</td> </tr> <tr> <td>02</td> <td>40 million and above</td> </tr> <tr> <td>03</td> <td>100 million and above</td> </tr> <tr> <td>04</td> <td>20 million and above</td> </tr> <tr> <td>05</td> <td>250 million and above</td> </tr> <tr> <td>06</td> <td>100 million and above</td> </tr> <tr> <td>07</td> <td>20 million and above</td> </tr> </tbody> </table>	Lot No.	Amount in PKR	01	40 million and above	02	40 million and above	03	100 million and above	04	20 million and above	05	250 million and above	06	100 million and above	07	20 million and above	Required
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**NOTE:**

- As outlined in the Standard Bidding Documents under clause 2.5 “Opening and Evaluation of E-Bids”, the bidder must ensure that its bids are complete in all aspects, including mandatory documentation (Legal, Technical, Past Experience, and Financial), as incomplete submissions will not be considered.
- During the evaluation process, clarifications based on already submitted documentation will be sought to complete the evaluation. New documentation that changes the substance of the bid will not be accepted.

- **We strongly encourage you to review your bids carefully and ensure their completeness before submission. Failure to do so may result in technical disqualification.**

## G. Award of Contract

2.6.5	Percentage for quantity increase or decrease is: <u>FIFTEEN (15%) PERCENT. However, increase or decrease in quantities beyond 15% will be mutually agreed between the Procuring Agency and the Awardee prior to the Contract.</u>
2.6.2	The Performance Guarantee shall be: <u>10% OF THE CONTRACT AMOUNT</u>
2.6.2	<p>The Performance Security (or guarantee) shall be in the form of: Bank Guarantee, Performance Security;</p> <p>Performance Guarantee must have a minimum validity period until the date of expiry of warranty period, support period or termination of services, or fulfillment of all obligations under the contract, whichever is later.</p> <p>The Contractor shall cause the validity period of the performance security to be extended for such period(s) as the contract performance may be extended.</p>

## Section-V: General Conditions of Contract

### 1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

- (a) "The Contract" means the agreement entered into between the Procuring Agency and the Supplier, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- (b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.
- (c) "The Goods" means all of the equipment, machinery, and/or other materials which the Supplier is required to supply to the Procuring Agency under the Contract.
- (d) "The Services" means those services ancillary and related to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, maintenance & repair and other such obligations of the Supplier covered under the Contract.
- (e) "GCC" means the General Conditions of Contract contained in this section.
- (f) "SCC" means the Special Conditions of Contract.
- (g) "The Procuring Agency" means the organization purchasing the Goods & Services, as named in SCC.
- (h) "The Procuring Agency's country" is the country named in SCC.
- (i) "The Supplier" means the Bidder or firm supplying the Goods and Services under this Contract.
- (j) "The Project Site," where applicable, means the place or places named in SCC.
- (k) "Day" means calendar day.

(l) “e-Bid” means electronic bids (separate financial and technical) to be submitted by bidders on e-Procurement System (EPADS).

**2. Application**

2.1. These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.

**3. Country of Origin**

*[where applicable]*

3.1. All Goods and Services supplied under the Contract shall have their origin in the countries and territories eligible under the rules, as further elaborated in the SCC.

3.2. For purposes of this Clause, “origin” means the place where the Goods were mined, grown, or produced, or from where the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized new product is obtained that is substantially different in basic characteristics or in purpose or utility from its components.

3.3. The origin of Goods and Services is distinct from the nationality of the Supplier. In any case, the requirements of rules 10 & 26, PPR-14, shall be followed.

**4. Standards**

4.1. The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standards appropriate to the Goods’ country of origin. Such standards shall be the latest issued by the concerned institution.

**5. Use of Contract Documents and Information; Inspection and Audit by the procuring agency.**

5.1. The Supplier shall not, without the Procuring Agency’s prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Procuring Agency in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2. The Supplier shall not, without the Procuring Agency’s prior written consent, make use of any document or information enumerated in GCC Clause 5.1 except for purposes of executing the Contract.

5.3. Any document, other than the Contract itself, enumerated in GCC Clause 5.1 shall remain the property of the Procuring Agency and shall be returned (all copies) to the Procuring Agency on completion of the

Supplier's performance under the Contract if so required by the Procuring Agency.

5.4. The Supplier shall permit the Procuring Agency to inspect the Supplier's accounts and records relating to the performance of the Supplier and to have them audited by auditors appointed by the donors, if so required by the donors.

## **6. Patent Rights**

6.1. The Supplier shall indemnify the Procuring Agency against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the Procuring Agency's country.

## **7. Performance Guarantee**

7.1. **Within fifteen (15) days of issuance of the notification of Contract award/Letter of Intent (LOI)**, the successful Bidder shall furnish to the Procuring Agency the Performance Guarantee in the amount specified in SCC/Bid Data Sheet & clause 2.6.2 of ITB. Performance Guarantee must have a minimum validity period until the date of expiry of warranty period, support period or termination of services, or fulfillment of all obligations under the contract, whichever is later.

7.2. The proceeds of the Performance Guarantee shall be payable to the Procuring Agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

7.3. As per Rule-56 of PPR-14, the performance guarantee shall be denominated in the currency of the Contract acceptable to the Procuring Agency and shall be in one of the following forms:

**(a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the Procuring Agency's country, in the form provided in the Bidding documents or another form acceptable to the Procuring Agency; or**

**(b) Bank Guarantee / Performance Security.**

7.4. The performance guarantee will be discharged by the Procuring Agency and returned to the Supplier not later than **thirty (30) days** following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise in SCC. The Contractor shall cause the validity period of the performance security to be extended for such period(s) as the contract performance may be extended.

## **8. Inspections and Tests**

8.1. The Procuring Agency or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Procuring Agency. SCC and the Technical Specifications shall specify what inspections and tests the Procuring Agency requires and where they are to be conducted. The Procuring Agency shall notify the Supplier in writing, in a timely manner, of the identity of any representatives nominated for these purposes.

8.2. The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery, and/or at the Goods' final destination. If conducted on the premises of the Supplier or its subcontractor(s) (if so, allowed by the Procuring Agency), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Procuring Agency.

8.3. Should any inspected or tested Goods fail to conform to the Specifications, the Procuring Agency may reject the Goods, and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Procuring Agency.

8.4. The Procuring Agency's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival in the Procuring Agency's country shall in no way be limited or waived by reason of the Goods having previously been inspected, tested, and passed by the Procuring Agency or its representative prior to the Goods' shipment from the country of origin.

8.5. Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

## **9. Packing**

9.1. The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2. The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional

requirements, if any, specified in SCC, and in any subsequent instructions ordered by the Procuring Agency.

**10. Delivery and Documents**

*[in case of Framework Modality the Procuring Agency may amend these condition as per its requirements]*

10.1. Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in the Schedule of Requirements. The details of shipping and/or other documents to be furnished by the Supplier are specified in SCC.

10.2. Upon delivery, the Procuring Agency shall give receiving certificate to the supplier with the statement that, "completion certificate along with satisfactory report shall be issued after due inspection as per clause-8 of GCC, which will enable the supplier to put up the bill".

*[Further conditions may be incorporated by the Procuring Agency keeping in view the nature of contract, DDP, CIF, C&F, FOR, FOP for example; for a DDP contract the clause may be as follows:].*

10.3. For purposes of the Contract, DDP trade term used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of *Incoterms*

10.4. Documents to be submitted by the Supplier are specified in SCC.

**11. Insurance**

*[If required and decided by the Procuring Agency]*

11.1. The Goods supplied under the Contract shall be delivered **on DDP Destination Basis** under which risk is transferred to the buyer after having been delivered, hence **Insurance** is sellers' responsibility.

**12. Transportation**

12.1. The Supplier is required under the Contract to transport the Goods to a specified place of destination within the Procuring Agency's country, including **freight**, insurance, and storage, as shall be specified in the Contract, and related costs shall be included in the Contract Price.

**13. Incidental Services**

*[If required and decided by the Procuring Agency]*

13.1. The Supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

- (a) satisfactory performance for specified time/ quantity on-site and/or supervision of on-site assembly and/or start-up of the supplied Goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;

- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) training of the Procuring Agency's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

13.2. Prices charged by the Supplier for incidental services shall be included in the Contract Price for the Goods and shall not exceed:

- (i) the prevailing rates charged for other parties by the Supplier for similar services; and
- (ii) original price of goods.

**14. Spare Parts**

*[If required and decided by the Procuring Agency]*

14.1. As specified in SCC, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- (a) such spare parts as the Procuring Agency may choose to purchase from the Supplier, provided that this choice shall not relieve the Supplier of any warranty obligations under the Contract; and
- (b) in the event of termination of production of the spare parts:
  - (i) advance notification to the Procuring Agency of the pending termination, in sufficient time to permit the Procuring Agency to procure needed requirements; and
  - (ii) following such termination, furnishing at no cost to the Procuring Agency, the blueprints, drawings, and specifications of the spare parts, if requested.

**15. Warranty**

15.1. The Supplier warrants that the Goods supplied under the Contract are new, unused, of the most recent or current models selected by the Procuring Agency, and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required

by the Procuring Agency's specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.

15.2. This warranty shall remain valid **as required in Section – III "Technical Specifications"** after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, or **as required in Section – III "Technical Specifications"** after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3. The Procuring Agency shall promptly notify the Supplier in writing of any claims arising under this warranty.

15.4. Upon receipt of such notice, the Supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Procuring Agency.

15.5. If the Supplier, having been notified, fails to rectify the defect(s) within the period specified in SCC, within a reasonable period, the Procuring Agency may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Procuring Agency may have against the Supplier under the Contract/relevant provision of PPR-14 including Blacklisting.

## **16. Payment**

16.1. The method and conditions of payment to be made to the Supplier under this Contract shall be specified in SCC.

16.2. The Supplier's request(s) for payment shall be made to the Procuring Agency in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 10, and upon fulfillment of other obligations stipulated in the Contract.

16.3. The currency of payment is **PAK RUPEES**.

## **17. Prices**

17.1. Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its Bid, with the exception of any price adjustments authorized in SCC.

## **18. Change Orders**

18.1. The Procuring Agency may at any time, by a written order given to the Supplier pursuant to GCC Clause 31, make changes within the

general scope of the Contract, only if required for the successful completion of the job, in any one or more of the following:

- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Procuring Agency;
- (b) the method of shipment or packing;
- (c) the place of delivery; and/or
- (d) the Services to be provided by the Supplier.

18.2. If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within **thirty (30) days** from the date of the Supplier's receipt of the Procuring Agency's change order. But, in no case, the overall impact of the change should exceed 15% of the contract cost and no provisions of PPR-14 should be violated.

**19. Contract Amendments**

19.1. Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by the mutual consent through written amendment signed by the parties. No variation in finalized brands/ makes/models shall be allowed except in special conditions where the manufacturer has stopped producing or suspended that model or the latest model of similar series or version has been launched by the manufacturer or non-availability due to international mergers of the manufacturers or similar unavoidable constraints.

**20. Assignment**

20.1. The Supplier shall not assign the whole of contract to anybody else. However, some parts of contract or its obligations may be assigned to sub-contractors with the prior written approval of the procuring agency.

**21. Sub-contracts**

21.1. The Supplier shall notify the Procuring Agency in the Bid of all subcontracts to be assigned under this Contract. Such notification, in the original Bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

21.2. Subcontracts must comply with the provisions of GCC Clause 20.

**22. Delays in the Supplier's Performance**

22.1. Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule prescribed by the Procuring Agency in the Schedule of Requirements-

22.2. If at any time during performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Procuring Agency in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Procuring Agency shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of Contract.

22.3. Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the imposition of liquidated damages.

**23. Liquidated Damages**

23.1. Subject to GCC Clause 25, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring Agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in SCC. Once the maximum is reached, the Procuring Agency may consider termination of the Contract pursuant to GCC Clause 24 along with other remedies available under PPR-14.

**24. Termination for Default**

24.1. The Procuring Agency, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:

- (a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Procuring Agency pursuant to GCC Clause 22;
- (b) if the Supplier fails to perform any other obligation(s) under the Contract; or
- (c) if the Supplier, in the judgment of the Procuring Agency has engaged in corrupt practices in competing for or in executing the Contract. For the purpose of this clause,

corrupt practices will be defined as per Section-2 (d) of The PPRA Act, 2009.

*“Corrupt practices” in respect of procurement process, shall be as given in S-2 (d) of PPRA, Act, 2009:*

*(d) “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official, bidder or Contractor in the procurement process or in Contract execution to the detriment of the procuring agency; or misrepresentation of facts in order to influence a procurement process or the execution of a Contract, collusive practices among bidders (prior to or after E-bid submission) designed to establish bid prices at artificial, noncompetitive levels and to deprive the procuring agency of the benefits of free and open competition and any request for, or solicitation of anything of value by any public official in the course of the exercise of his duty; it may include any of the following:*

- 5. coercive practice by impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence the actions of a party to achieve a wrongful gain or to cause a wrongful loss to another party;*
- 6. collusive practice by arrangement between two or more parties to the procurement process or Contract execution, designed to achieve with or without the knowledge of the procuring agency to establish prices at artificial, noncompetitive levels for any wrongful gain;*
- 7. offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the acts of another party for wrongful gain;*
- 8. any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;*
- 9. obstructive practice by harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a Contract or deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements before investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the*

*investigation, or acts intended to materially impede the exercise of inspection and audit process*

24.2. In the event the Procuring Agency terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Procuring Agency may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Procuring Agency for any excess costs for such similar Goods or Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

**25. Force Majeure**

25.1. Notwithstanding the provisions of GCC Clauses 22, 23, and 24, the Supplier shall not be liable for forfeiture of its Performance Guarantee, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

25.2. For purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Procuring Agency in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes. Both, the Procuring Agency and the Supplier, may agree to exclude certain widespread conditions e.g: epidemics, pandemics, quarantine restrictions etc. from the purview of "Force Majeure".

25.3. If a Force Majeure situation arises, the Supplier shall promptly notify the Procuring Agency in writing of such condition and the cause thereof. Unless otherwise directed by the Procuring Agency in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. Any difference of opinion concerning "Force Majeure" may be decided through means given herein below.

**26. Termination for Insolvency**

26.1. The Procuring Agency may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Procuring Agency.

**27. Termination for Convenience**

27.1. The Procuring Agency, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Procuring Agency's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

27.2. The Goods that are complete and ready for shipment (if applicable) within **thirty (30) days** after the Supplier's receipt of notice of termination shall be accepted by the Procuring Agency on the Contract terms and prices. For the remaining Goods, the Procuring Agency may choose:

- (a) to have any portion completed and delivered at the Contract terms and prices; and/or
- (b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

**28. Resolution of Disputes**

28.1. After signing the contract or issuance of purchase order, The Procuring Agency and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

28.2. If, after **thirty (30) days** from the commencement of such informal negotiations, the Procuring Agency and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in SCC. These mechanisms may include, but are not restricted to, conciliation mediated by a third party, adjudication in an agreed and/or arbitration as per rule 68 of PPR-14 and in accordance with Arbitration Act-1940.

**29. Governing Language**

29.1. The Contract shall be written in the language specified in SCC. Subject to GCC Clause 30, the version of the Contract written in the specified language shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

**30. Applicable Law**

30.1. The Contract shall be interpreted in accordance with the laws of Punjab (Pakistan) unless otherwise specified in SCC.

**31. Notices**

31.1. Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or by any information technology mean for the time being in use and acceptable in ordinary course of business to the other party's address specified in SCC.

31.2. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

**32. Taxes and Duties**

32.1. Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods & Services to the Procuring Agency. In case of imposition of new taxes/duties or concession thereof after the deadlines for the submission of bids the effect thereof shall be borne or availed by the procuring agency as the case may be.

**33. Contract Period**

The Contract duration shall be for the period of **three (03) years** starting from the date of issuance of notification of award, till the delivery, installation & commissioning of all Goods/Services or end of warranty / support period, whichever is later.

## Section-VI. Special Conditions of Contract

### Special Conditions of Contract

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

#### 1. Definitions (GCC Clause 1)

GCC 1.1 (g)—The Procuring Agency is: **PUNJAB INFORMATION TECHNOLOGY BOARD**

GCC 1.1 (h)—The Procuring Agency's country is: **PAKISTAN**

GCC 1.1 (i)—The Supplier is: **AWARDEE**

#### 2. Country of Origin (GCC Clause 3)

*[All countries and territories as indicated in Section IV, BDS, of the Bidding documents]*

#### 3. Performance Guarantee (GCC Clause 7)

GCC 7.1—As per rule 56 of PPR-14, the amount of Performance Guarantee, as a percentage of the Contract Price, shall be: **10% OF THE CONTRACT AMOUNT**

GCC 7.4—the Performance Guarantee shall be retained to cover the Supplier's warranty obligations or defect liability period under Clause GCC 15.2

Performance Guarantee must have a minimum validity period until the expiry date of the warranty period, support period or termination of services, or fulfillment of all obligations under the contract, whichever is later.

The Contractor shall extend the validity period of the performance security for such period(s) as the contract performance may be extended.

#### 4. Inspections and Tests (GCC Clause 8)

GCC 8.6—Inspection and tests before shipment of Goods and at final acceptance are as follows:

#### 5. Packing (GCC Clause 9)

GCC 9.2—*[This SCC shall supplement GCC Clause 9.2, exact details of the requisite packages be provided]:*

## 6. Delivery and Documents

**(GCC Clause 10)** *[The format of the contract is to be decided by the Procuring Agency, however, DDP provisions are as follows]*

**(DDP terms)**

GCC 10.3—Upon shipment, the Supplier shall notify the Procuring Agency of the full details of the shipment, including the Contract number, description of Goods, quantity, and usual transport document. The Supplier shall mail the following documents to the Procuring Agency:

- (i) copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;
- (ii) original and two copies of the usual transport document (for example, a negotiable bill of lading, a non-negotiable sea waybill, an inland waterway document, an air waybill, a railway consignment note, a road consignment note, or a multimodal transport document) which the buyer may require to take the goods;
- (iii) copies of the packing list identifying the contents of each package;
- (iv) Insurance Certificate;
- (v) Manufacturers or Supplier's warranty certificate;
- (vi) Where applicable (Pre-shipment/ port/ Procuring Agency Delivery site, inspection certificate), issued by the Procuring Agency nominated inspection agency, and the Supplier's factory inspection report (Inspection type depends on the nature of procurement and volume of procurement); and
- (vii) Certificate of origin.

## 7. Insurance

**(GCC Clause 11)** [where applicable]

GCC 11.1— The Goods supplied under the Contract shall be **delivered duty paid (DDP)** under which risk is transferred to the buyer after having been delivered, hence insurance coverage is sellers' responsibility. Since the Insurance is sellers' responsibility, they may arrange appropriate coverage.

## 8. Incidental Services (GCC Clause 13)

GCC 13.1—Incidental services to be provided are:

*[Selected services covered under GCC Clause 13 and/or other should be specified with the desired features. The price quoted in the Bid price or agreed with the selected Supplier shall be included in the Contract Price.]*

## 9. Spare Parts

**(GCC Clause 14)** [where applicable]

GCC 14.1—Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods. Other spare parts and components shall be supplied as promptly as possible, but in any case, within six (06) months of placing the order and opening the letter of credit.

## 10. Warranty

### (GCC Clause 15)

GCC 15.2—In partial modification of the provisions, the warranty period shall be **as required in Section – III “Technical Specifications”** from the date of acceptance/satisfactory installation of the Goods or **as required in Section – III “Technical Specifications”** from the date of shipment (if applicable), whichever occurs earlier. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the Contract. If, for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall, at its discretion, either:

- (a) make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests in accordance with SCC 4,

**Or**

- (b) pay liquidated damages to the Procuring Agency in case of failure to meet the contractual guarantees. The rate of these liquidated damages shall be **(one-half (0.5) percent of the Contract price per week)**.

GCC 15.4 & 15.5—The period for correction of defects in the warranty period is:

- (i) Free, on-site repair / replacement of defective / damaged parts and labor, within **forty-eight (48) hours** of intimation (Or as per the warranty required in Section – III “Technical Specifications”)
- (ii) On site Replacement of such defective / damaged Goods will be provided, if repair of such Goods involves a duration exceeding **forty-eight (48) hours**. (Or as per the warranty required in Section – III “Technical Specifications”)

## 11. Payment (GCC Clause 16)

GCC 16.1—The method and conditions of payment to be made to the Supplier under this Contract shall be as follows

GCC 16.1—The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:

- 60% payment will be made after delivery, inspection, and acceptance of all Goods of the solution by the Purchaser. A 20% payment will be made after installation, configuration, and commissioning of the complete solution and confirmation/verification of warranty and support services by the Purchaser. 20% Payment will be made after successful delivery and acceptance of the training on the complete solution.
- Partial payment against partial delivery, installation & commissioning, and acceptance of Goods under the Contract, may be allowed at the discretion of the Purchaser, as the case may be.

Payment may be made in **Pak. Rupees** in the following manner:

- (i) **Running Bill. or**
- (ii) **Treasury Cheque, or**
- (iii) **Cross Cheque**

### **13. Prices (GCC Clause 17)**

GCC 17.1—Prices shall be fixed and shall not be adjusted.

### **14. Liquidated Damages (GCC Clause 23)**

GCC 23.1—Applicable rate: **one-half (0.5) percent of the Contract Price per week**  
Maximum deduction: **ten (10) percent of the Contract Price**

### **15. Resolution of Disputes (GCC Clause 28)**

GCC 28.2—The dispute resolution mechanism to be applied pursuant to GCC Clause 28.2 shall be as follows:

As per rule-68 of PPR-14, in the case of a dispute between the Procuring Agency and the Supplier, the dispute shall be referred for arbitration in accordance with the Arbitration Act 1940.

### **16. Governing Language (GCC Clause 29)**

GCC 29.1—The Governing Language shall be: **ENGLISH**

### **17. Applicable Law (GCC Clause 30)**

GCC 30.1-The Contract shall be interpreted in accordance with the laws applicable in the jurisdiction of the province of Punjab (Pakistan):

## **18. Notices (GCC Clause 31)**

GCC 31.1—Procuring Agency’s address for notice purposes: **PROCURING AGENCY ADDRESS**

—Supplier’s address for notice purposes: **AWARDEE’s ADDRESS**

## Section-VII. Schedule of Requirements

### 7.1 Schedule of Requirements

The delivery schedule expressed as weeks stipulates a delivery date which is the date at which delivery is required.

In order to determine the correct date of delivery hereafter specified, the Procuring Agency has taken into account the additional time that will be needed for international or national transit to the Project Site or to another common place.

#### DELIVERY SCHEDULE

<b>Sr.</b>	<b>Description of LOT</b>	<b>Delivery Terms (Including Installation, Commissioning and Training)</b>
<b>1</b>	LOT : 01 – 3D Printing Lab Equipment	<b>Within 16 Weeks</b> After issuance of the LOI
<b>2</b>	LOT : 02 – Robotics Lab Equipment	<b>Within 16 Weeks</b> After issuance of the LOI
<b>3</b>	LOT : 03 (Item 1) - CNC Lathe Machine LOT : 03 (Item 2) – CNC Vertical Machining Center Milling Machine	<b>Within 16 Weeks</b> After issuance of the LOI
<b>4</b>	LOT : 04 – CNC Fiber Laser Cutter	<b>Within 16 Weeks</b> After issuance of the LOI
<b>5</b>	LOT : 05 – CNC 5-Axis Simultaneous Machine	<b>Within 24 Weeks</b> After issuance of the LOI
<b>6</b>	LOT : 06 – PCB Prototyping Machine – Complete Setup	<b>Within 20 Weeks</b> After issuance of the LOI
<b>7</b>	LOT : 07 – AR / VR Lab Equipment	<b>Within 12 Weeks</b> After issuance of the LOI

## Section-VIII: Sample Forms

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**8.1 Bid Form**  
**(For each Lot separately)**

- To be reproduced on the letter head, signed & stamped by the Bidder.
- To be attached with the Technical Bid, in case of Single Stage Two Envelope Procedure.

Date: \_\_\_\_\_

To: [name and address of Procuring Agency]

Gentlemen and/or Ladies:

Having examined the Bidding documents including Addenda Nos. [insert numbers], the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver [description of goods and services] in conformity with the said Bidding documents.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we will obtain the guarantee of a bank in a sum equivalent to **10%** percent of the Contract Price for the due performance of the Contract, in the form prescribed by the Procuring Agency.

We agree to a Bid by this Bid for a period of [number] days from the date fixed to Bid opening under Clause 2.3.9 of the Instructions to Bidders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed (if required), this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

**[In case of single stage one envelope bidding procedure]**

The Composition of our Bid is:

- a) Original Bid Form (as per **form 8.1** of Bidding documents) on letter head of the firm, duly signed and stamped.
- b) All the forms relevant to the Technical and Financial Bids (clearly indicated on each form)
- c) Original of Bid Security instrument
- d) All the required documents establishing eligibility of bidders/goods shall be made part of the bid.

- e) Any other document required by the procuring agency not inconsistent with PPR-14.

***[In case of single stage two envelope bidding procedure],***

The Composition of our bid consists on separate Technical and financial bids, detail of which is as follows:

**Technical bid includes the following: -**

- a) Original Bid Form (as per **form 8.1** of Bidding documents) on letter head of the firm, duly signed and stamped.
- b) All the forms relevant to the technical bid, to be reproduced on the letter head of the bidder as indicated on each individual form.
- c) Original of Bid Security instrument
- d) Any other document required by the procuring agency not inconsistent with PPR-14.

**Financial bid includes the following: -**

- a) Price Schedule / Financial Form (as per **form 8.9**) to be reproduced on the letter head of the bidder duly signed and stamped.
- b) Original Bid Security Form along with Copy of Bid Security instrument
- c) *Any other document required by the procuring agency not inconsistent with PPR-14.*

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of service provider	Amount and Currency
_____	_____
_____	_____
_____	_____

(if none, state "none")

We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

\_\_\_\_\_  
*[signature]*

\_\_\_\_\_  
*[in the capacity of]*

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_

**8.2 Bidder's JV Members Information Form (If Applicable)**  
**(For each Lot separately)**

- To be reproduced and signed & stamped by the lead partner and all JV members on their letter Pad,
- To be attached with Technical Bid in addition to the JV agreement

*{The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture}.*

Date: *[insert date (as day, month and year) of Bid submission]*

Bidding Document No.: *[insert]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name: <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i>
4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i>
5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i>
6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4. <input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Purchaser, in accordance with ITB 4.6.
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

### **8.3. Manufacturer's Authorization Form (If Applicable)** *(For each Lot separately)*

- *To be signed and stamped by the Manufacturer and Bidder*
- *To be attached with Technical Bid*

[See Clause 2.3.5 (iii) of the Instructions to Bidders.]

To: *[name of the Procuring Agency]*

WHEREAS *[name of the Manufacturer]*, who are established and reputable manufacturers of *[name and/or description of the goods]* having factories at *[address of factory]* do hereby authorize *[name and address of Agent]* to submit a Bid against the *[Bidding Document No. and Title - – Lot No. XX]*, and subsequently, negotiate and sign the Contract with you against for the above goods manufactured by us/software produced by us.

The e-contact details and verifiable link to confirm catalog/part numbers, warranty, subscription & support services, as applicable, are as under:

- E-Contact details of Principal / OEM
- Verifiable Link for catalog, part numbers, warranty, support, subscription, etc.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract for the goods offered for supply/software to be delivered by the above firm against the *[Bidding Document No. and Title – Lot No. XX]*.

---

*[Signature for and on behalf of Manufacturer]*

Note:

- This letter of authority should be on the letterhead of the Manufacturer and should be signed by a person competent and having the power of attorney to bind the Manufacturer. It should be included by the Bidder in its Bid.*
- This letter of authority is provided as a sample. However, the bidders can amend, as appropriate, to serve the purpose of required authorization as per the evaluation criteria in the Bidding Document.*

**8.4. Bidder Profile Form**  
*(For each Lot Separately)*

- To be reproduced on the letter head, signed & stamped by the Bidder.
- To be attached with Technical Bid

Sr.#	Particulars
1.	Name of the company:
2.	<b>Registered Office:</b>
	Address:
	Office Telephone Number:
	Fax Number:
3.	<b>Contact Person:</b>
	Name:
	Personal Telephone Number:
	Email Address:
4.	<b>Local office if any:</b>
	Address:
	Office Telephone Number:
	Fax Number:
5.	<b>Registration Details:</b>

**a) Audited Financial Statement Attachment/Income Tax Return (Last 03 years) – or as applicable per the evaluation criteria**

Yes	No
-----	----

**b) Details of Experience (Last 03 Years) – or as applicable per the evaluation criteria**

(i)	<b>Similar Project (Agency/Department)</b>	<b>Item Name</b>
(ii)	<b>Value of total Projects/Tenders/POs</b>	<b>Amount</b>

**c) Staff Detail and last month Payroll – If applicable per the evaluation criteria**

Yes	No
-----	----

**8.5. General Information Form**  
*(For each Lot separately)*

- *To be reproduced on the letter head, signed & stamped by the Bidder.*
- *To be attached with Technical Bid*

	Particulars			
<b>Company Name</b>				
<b>Abbreviated Name</b>				
<b>National Tax No.</b>			<b>Sales Tax Registration No</b>	
<b>PRA Tax No.</b>				
<b>No. of Employees</b>			<b>Company's Date of</b>	
			<b>Formation</b>	

\*Please attach copies of NTN, GST Registration, and Professional Tax Certificate (If applicable)

<b>Registered Office Address</b>		State/Province	
<b>City/Town</b>		Postal Code	
<b>Phone</b>		Fax	
<b>Email Address</b>		Website Address	

## 8.6. Affidavit

*(For each Lot separately)*

- *To be printed on PKR 100 Stamp Paper, duly attested by oath commissioner or on the Official Letter-head.*
- *To be attached with Technical Bid*

**Name:** \_\_\_\_\_

*(Applicant)*

I, the undersigned, do hereby certify that all the statements made in the Bidding document and in the supporting documents are true, correct and valid to the best of my knowledge and belief and may be verified by employer if the Employer, at any time, deems it necessary.

The undersigned hereby authorize and request the bank, person, company or corporation to furnish any additional information requested by the *[name of Procuring Agency]* of the Punjab deemed necessary to verify this statement regarding my (our) competence and general reputation.

The undersigned understands and agrees that further qualifying information may be requested and agrees to furnish any such information at the request of the *[name of Procuring Agency]*. The undersigned further affirms on behalf of the firm that:

- (i) The firm is not blacklisted by the procuring agency and PPRA.
- (ii) The documents/photocopies provided by the firm with its Bid are authentic. (In case of any fake/bogus document found at any stage of the procurement process, the firm shall be blacklisted as per Rules / Laws.)
- (iii) The firm certifies the correctness of information.
- (iv) The firm complies with Section – III “Technical Specifications”, and Section – VII “Schedule of Requirements” of the Bidding Document.
- (v) The firm complies with all terms & conditions mentioned in the Bidding Documents.
- (vi) The firm complies that its Bid is valid for 90 days after the opening of the E-Bid.
- (vii) The firm certifies that if awarded the contract, the procuring agency may deduct all the relevant taxes and duties, from its invoice, as applicable.
- (viii) The firm undertakes that it shall provide the Performance Guarantee and sign the formal contract within fifteen (15) days of the issuance of notification of award/Letter of Intent (LOI).

*[Name of the Contractor/ Bidder/ Supplier]* undertakes to treat all information provided as confidential.

*Signed by an authorized Officer of the company*

Title of Officer: \_\_\_\_\_

Name of Company: \_\_\_\_\_

Date: \_\_\_\_\_

**8.7. Performance Guarantee Form**  
*(For each Lot separately)*

To,  
[name and address of the Procuring Agency]

**WHEREAS** (Name \_\_\_\_\_ of the Contractor/ Supplier) \_\_\_\_\_ hereinafter called "the Contractor" has undertaken, in pursuance of "INVITATION TO BID FOR THE "**PURCHASE/PROCUREMENT OF \_\_\_\_\_**" procurement of the following:

1. [*Please insert details*].  
(Here in after called "the Contract").

**AND WHEREAS** it has been stipulated by you in the Contract that the Contractor shall furnish you with a bank guarantee by a scheduled bank for the sum specified therein as security for compliance with the Contractor's performance obligations in accordance with the Contract;

**AND WHEREAS** we have agreed to give the Contractor a Guarantee;

**THEREFORE WE** hereby affirm that we are Guarantor and responsible to you, on behalf of the Contractor, up to a total of \_\_\_\_\_ (Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the Contractor to be in default under the Contract, and without cavil or argument, any sum or sums as specified by you, within the limits of \_\_\_\_\_ (Amount of Guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, or \_\_\_\_\_ [insert number of days] after the rectification of the Defects, expiry date of the warranty period, support period or termination of services, or fulfillment of all obligations under the contract, whichever is later.

**[NAME OF GUARANTOR]**

Signature \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

Seal \_\_\_\_\_

Date \_\_\_\_\_

## 8.8. Technical Bid Form

### Instructions for Bidders on Technical Compliance Table for each Lot (Technical Bid):

- a. Fill out the table completely:**
  - a) Enter the parameters of your offered goods/services against the required parameters from the technical specifications provided below.
  - b) For compliance, mark “Yes” if the offered parameters meet or exceed the required specifications; otherwise, mark “No.”
  
- b. Provide references:**
  - a) Indicate the relevant page number in your bid where supporting documents can be found.
  - b) Include any online references (e.g., product datasheets, official documentation links) and specify the relevant page number for easy verification.
  
- c. Ensure accuracy and completeness:**
  - a) Incomplete responses, failure to provide references, or discrepancies in compliance may lead to disqualification.
  
- d. Format and submission:**
  - a) Submit the table as part of your Technical Proposal in the specified format for each lot separately.
  - b) Use additional rows as required to address all parameters.

### Technical Compliance Table Template (For Each Bid Form – Technical Bid)

LOT No. XX					
LOT (Description/Title)					
ITEM No. XX (Description)					
S. No.	Required Parameters (from Technical Specifications)	Offered Parameters (by Bidder)	Compliance (Yes/No)	Reference Page Number in the Bid	Online Reference Link or Datasheet with Page Number in the Bid
1	[Enter the required specification]	[Enter the offered specification]	[Yes/No]	[Page Number]	[Online link or Datasheet Reference Page Number in the Bid]
2	[Enter the required specification]	[Enter the offered specification]	[Yes/No]	[Page Number]	[Online link or Datasheet Reference Page Number in the Bid]
3	[Enter the required specification]	[Enter the offered specification]	[Yes/No]	[Page Number]	[Online link or Datasheet Reference Page Number in the Bid]
4	[Enter the required specification]	[Enter the offered specification]	[Yes/No]	[Page Number]	[Online link or Datasheet Reference Page Number in the Bid]
5	[Enter the required specification]	[Enter the offered specification]	[Yes/No]	[Page Number]	[Online link or Datasheet Reference Page Number in the Bid]

**TECHNICAL BID FORM**  
**(For each Lot separately)**

- *Item names and quantities must be reproduced from Section – III (Technical Specifications). If any deviations are needed, it must be mentioned/quoted, separately in the Technical Proposal.*
- Optional Bid/Quote is not allowed. The bidders must comply with the requirements mentioned in SECTION – III and submit their bid accordingly against each item.
- *To be reproduced on the letter head, signed & stamped by the Bidder.*
- *To be attached with Technical Bid.*

LOT No. XX						
LOT (Description/Title)						
ITEM No. XX (Description)						
S. No.	Item Name	Brand name with Country of Manufacturer	Make & Model	Country of Origin	Quantity	Offered Parameters (Specification/Dimensions)
1						
2						
3						
4						
5						

Stamp & Signature of Bidder \_\_\_\_\_

**8.9. Contract Form**  
**(For each Lot separately)**

THIS AGREEMENT made on the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ between [name of Procuring Agency] of [country of Procuring Agency] (hereinafter called “the Procuring Agency”) on the one part and [name of Supplier] of [city and country of Supplier] (hereinafter called “the Supplier”) on the other part:

WHEREAS the Procuring Agency invited Bids for certain goods and ancillary services, viz., [brief description of goods and services] and has accepted a Bid by the Supplier for the supply of those goods and services in the sum of [contract price in words and figures] (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - (a) the Bid Form and the Price Schedule submitted by the Bidder;
  - (b) the Schedule of Requirements;
  - (c) the Technical Specifications;
  - (d) the General Conditions of Contract;
  - (e) the Special Conditions of Contract; and
  - (f) the Procuring Agency’s Notification of Award.
  - (g) Contract agreement
  - (h) Complete Bidding document
3. In consideration of the payments to be made by the Procuring Agency to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Procuring Agency to provide the goods and services and to rectify defects therein in conformity with all respects in accordance with the provisions of the Contract.
4. The Procuring Agency hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the rectification of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year mentioned above.

Signed, sealed, delivered by \_\_\_\_\_ the \_\_\_\_\_ (for the Procuring Agency)

Signed, sealed, delivered by \_\_\_\_\_ the \_\_\_\_\_ (for the Supplier)

### 8.10. Financial Bid Form/Price Schedule

(For each Lot separately)

- Item names and quantities must be reproduced from Section – III (Technical Specifications). If any deviations are needed, it must be mentioned/quoted, separately in the Financial Proposal.
- To be reproduced on the letter head, signed & stamped by the Bidder.
- To be attached with Financial Bid.

LOT No. 01							
3D Printing Setup on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	FDM 3D Printer 220*220*240mm					4	
2	FDM 3D Printer 400 × 400 × 400 mm					2	
3	FDM Multicolor 3D Printer					2	
4	FDM Multicolor 3D Printer					1	
5	FDM 3D Printer					1	
6	MSLA 3D Printer					2	
7	MSLA 3D Printer					1	
8	3-IN-1 3D Printer					1	
9	Wash and Cure Station					1	
10	Wash and Cure Plus Station					1	
11	Filament Dryer					1	
12	Vacuum Forming Machine					1	
13	Desktop PC's					1	
14	Hand Held Scanner					1	
15	Desktop 3D Scanner					1	
16	3D PLA Tough filament					50	

LOT No. 01							
3D Printing Setup on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
17	3D ABS filament					20	
18	3D ASA filament					5	
19	3D PETG filament					20	
20	TPU 3D Printing filament					10	
21	Water washable standard resin					15	
22	ABS like Pro Resin					8	
23	Flexible Resin					3	
24	High temperature resistant resin					3	
25	Dental Cast able Resin					3	
26	Engineering Art Resin					3	
<b>Price for 3D Printing Setup on Turnkey Basis including the Warranty, Support, Operations &amp; Maintenance &amp; Resident Operator for 1st Year</b>							<b>A</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 2nd Year</b>							<b>B</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 3rd Year</b>							<b>C</b>
<b>Certified Resident Operator (one year cost)</b>							<b>D</b>
<b>TOTAL BID PRICE = P</b>							<b>P=A+B+C+D</b>

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
- (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
- (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- (iv) Where required, the price for the Optional Items should be quoted separately in the Financial Proposal.

**Stamp & Signature of Bidder** \_\_\_\_\_

**LOT No. 02**

**Robotics Lab Setup on Turnkey Basis**

S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	Humanoid Robot					1	
2	Cobot 1					1	
3	4D LIDAR L2					5	
4	Wheeled Mobile Robot Base					1	
5	Robotic Dog (with controller)					1	
6	Camera 1					1	
7	Camera 2					5	
8	Camera 3					5	
9	Robotics Construction Set Building Blocks					5	
10	DOFBOT Pro 3D Depth Vision Robotic Arm					5	
11	High-end Computers					2	
12	Quadcopter Carbon Fiber Frame Kit (For QAV250 250mm					10	
13	DJI Quadcopter F450 Frame					10	
14	Frame Kit (F550 Hexa-Rotor 550mm 6-Axis)					10	
15	FPV Quadcopter Frame Discovery (X500 Alien V2 TBS DJI Economy)					10	
16	Fully Carbon Fiber Mini Racing Quadcopter Frame (FPV M250-C30 250mm)					10	
17	Flight Controller Holybro Pixhawk 6C					10	
18	Flight Controller Cube Orange					10	

**LOT No. 02**

**Robotics Lab Setup on Turnkey Basis**

S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
19	Flight Controller Board (With M8N Ublox GPS and Accessories Ardupilot APM 2.8)					10	
20	Flight Controller Board (For Multicopter APM 2.8)					10	
21	Radio Telemetry Kit 3DR					10	
22	GPS Module (e.g., NEO-M8N)					15	
23	1000KV Brushless Motor (For Multirotor XXD A2212)					40	
24	Brushless Outrunner Motor (A2212 1400KV 4pcs set)					40	
25	RC Brushless Motor (A2212/6T 2200kv)					40	
26	Propellers 10 inch					100	
27	Battery					20	
28	Battery Charger					5	
29	PDB (Power Distribution Board)					20	
30	XT60 Connectors / Battery Leads					60	
31	FS-I6 Transmitter with FS-IA6 Receiver					10	
32	QX_MOTOR RC Airplane Parts F450 F550 FPV Aerial Photography Gimbal Damping Tall Foot Stool					20	
33	Hex Driver / Screwdriver Set					10	
34	Vibration Dampening Mount					20	
35	GPS Mount for APM NEO M8N					20	
36	Propeller Guards					20	
37	Camera Gimble, 2-axes					5	
38	E-bike Wheels Scooter Hub Motor + Controller					12	
39	E-bike Wheels Scooter Hub Motor + Controller					12	

LOT No. 02							
Robotics Lab Setup on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
40	Battery packs					5	
41	Jetson Orin Development Kit					5	
42	Raspberry Pi					5	
43	IMU for localization					5	
44	LiDAR					5	
45	Depth Camera					5	
46	10000mAh LiPo Battery					5	
47	G-Tech Dual-channel Charger					2	
48	Pressure Sensor					5	
<b>Price for Robotics Lab Setup on Turnkey Basis including the Warranty, Support, Operations &amp; Maintenance &amp; Resident Operator for 1st Year</b>							<b>A</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 2nd Year</b>							<b>B</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 3rd Year</b>							<b>C</b>
<b>Certified Resident Operator (one year cost)</b>							<b>D</b>
<b>TOTAL BID PRICE = P</b>							<b>P=A+B+C+D</b>

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
- (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
- (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- (iv) Where required, the price for the Optional Items should be quoted separately in the Financial Proposal.

**Stamp & Signature of Bidder** \_\_\_\_\_

LOT No. 03							
CNC Machines Setup (Lathe & Milling) on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	CNC Lathe Machine					1	
2	Vertical Machining Center – Milling Machine					1	
Price for CNC Machines Setup (Lathe & Milling) on Turnkey Basis including the Warranty, Support, Operations & Maintenance & Resident Operator for 1st Year							A
Extended Warranty, Support, and Operations & Maintenance Price of the Complete Solution for 2nd Year							B
Extended Warranty, Support, and Operations & Maintenance Price of the Complete Solution for 3rd Year							C
Certified Resident Operator (one year cost)							D
<b>TOTAL BID PRICE = P</b>							<b>P=A+B+C+D</b>

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
  - (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
  - (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- Where required, the price for the Optional Items should be quoted separately in the Financial Proposal

**Stamp & Signature of Bidder** \_\_\_\_\_

LOT No. 04							
Fiber Laser Cutter Setup on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	Fiber Laser Cutter					1	
Price for Fiber Laser Cutter Setup on Turnkey Basis including the Warranty, Support, Operations & Maintenance & Resident Operator for 1st Year							A
Extended Warranty, Support, and Operations & Maintenance Price of the Complete Solution for 2nd Year							B
Extended Warranty, Support, and Operations & Maintenance Price of the Complete Solution for 3rd Year							C
Certified Resident Operator (one year cost)							D
TOTAL BID PRICE = P							P=A+B+C+D

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
- (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
- (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- (iv) Where required, the price for the Optional Items should be quoted separately in the Financial Proposal.

**Stamp & Signature of Bidder** \_\_\_\_\_

LOT No. 05							
5-Axis Simultaneous CNC Machine Setup on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	CNC 5-Axis Simultaneous Machine					1	
Price for 5-Axis Simultaneous CNC Machine Setup on Turnkey Basis including the Warranty, Support, Operations & Maintenance & Resident Operator for 1st Year							A
Extended Warranty, Support, and Operations & Maintenance Price of the Complete Solution for 2nd Year							B
Extended Warranty, Support, and Operations & Maintenance Price of the Complete Solution for 3rd Year							C
Certified Resident Operator (one year cost)							D
TOTAL BID PRICE = P							P=A+B+C+D

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
- (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
- (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- (iv) Where required, the price for the Optional Items should be quoted separately in the Financial Proposal.

**Stamp & Signature of Bidder** \_\_\_\_\_

**LOT No. 06**

**PCB Prototyping Setup on Turnkey Basis**

S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	PCB Prototyping Center					1	
2	Air Compressor					1	
3	Vacuum Cleaner					1	
4	Digital Slide Gauge					1	
5	Measuring Microscope					1	
6	Starter Tool set					1	
7	Base Plate					1	
8	Base Plate					1	
9	Tools & Accessories					1	
10	Contour Routers					3	
11	Drill Bits					20	
12	Through Hole Plating					1	
13	Desktop Vacuum Table					1	
14	Hot Air Oven					1	
15	Solder Resist Mask					1	
16	Silkscreen					1	
17	LED UV- Exposure unit					1	
18	Galvanic Through hole plating					1	
19	Set of Chemical (for Galvanic through hole plating)					1	
20	Electroless tin liquid					1	

21	Multipress					1	
22	6-Layer Multilayer set for MultiPress					1	
<b>Price for PCB Prototyping Setup on Turnkey Basis including the Warranty, Support, Operations &amp; Maintenance &amp; Resident Operator for 1st Year</b>							<b>A</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 2nd Year</b>							<b>B</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 3rd Year</b>							<b>C</b>
<b>Certified Resident Operator (one year cost)</b>							<b>D</b>
<b>TOTAL BID PRICE = P</b>							<b>P=A+B+C+D</b>

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
- (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
- (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- (iv) Where required, the price for the Optional Items should be quoted separately in the Financial Proposal.

**Stamp & Signature of Bidder** \_\_\_\_\_

LOT No. 07							
AR/VR Lab Setup on Turnkey Basis							
S. No.	Item Name	Offered Parameters (Specification/Dimensions)	Brand, Make & Model	Country of Origin	Unit price (inclusive of all taxes & duties etc.)	Quantity	Total price (inclusive of all taxes & duties etc.)
1	HTC Vive Pro 2					1	
2	Apple Vision Pro					1	
3	KatVR Mini S Treadmill					1	
4	Full Body WEARABLE (SUIT Size: Small 02, Medium 02, Large 01)					5	
5	SMART GLOVES					3	
6	COILPRO (MOCAP DEVICE)					2	
7	HEAD CAM					3	
8	PICO 4 Headset					1	
9	High End Rendering PC's					2	
10	360 Camera					1	
11	Phone 1					1	
12	Phone 2					1	
<b>Price for AR/VR Lab Setup on Turnkey Basis including the Warranty, Support, Operations &amp; Maintenance for 1st Year</b>							<b>A</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 2nd Year</b>							<b>B</b>
<b>Extended Warranty, Support, and Operations &amp; Maintenance Price of the Complete Solution for 3rd Year</b>							<b>C</b>
<b>TOTAL BID PRICE = P</b>							<b>P=A+B+C</b>

Total Bid value (against which a Bid shall be evaluated) in figure.

Total Bid value (against which a Bid shall be evaluated) in words.

**Note:**

- (i) In case of difference between unit price and total price, unit price shall prevail and total price shall be “final”. (Please refer ITB clause 2.5.6).
- (ii) In case of difference between amount in “words” and amount in “figures”, amount in “words” shall be considered final.
- (iii) A bid not compliant to the taxes (as notified by the government) or excluding applicable taxes and duties shall straight away be rejected.
- (iv) Where required, the price for the Optional Items should be quoted separately in the Financial Proposal.

**Stamp & Signature of Bidder** \_\_\_\_\_

### 8.11. Bid Security Form (For each Lot separately)

- To be reproduced on the letter head, signed & stamped by the Bidder.
- Copy of the Bid security instrument must be submitted with the financial proposal,
- **Original Bid Security Instrument must be submitted in an envelope clearly marked with the Bidding Document Number and Title, before the conclusion of Bid Opening session at:**  
**Procurement Office**  
**11<sup>th</sup> Floor, Arfa Software Technology Park (ASTP), 346-B, Ferozpur Road, Lahore.**

Whereas [name of the Bidder] (hereinafter called "the Bidder") has submitted its Bid dated [date of submission of Bid] for the supply of [name and/or description of the goods] (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that WE [name of bank] of [name of country], having our registered office at [address of bank] (hereinafter called "the Bank"), are bound unto [name of Procuring Agency] (hereinafter called "the Procuring Agency") in the sum of for which payment well and truly to be made to the said Procuring Agency, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its Bid by the Procuring Agency during the period of Bid validity:
  - (a) fails or refuses to execute the Contract Form, if required; or
  - (b) fails or refuses to furnish the Performance Guarantee, in accordance with the Instructions to Bidders;

we undertake to pay to the Procuring Agency up to the above amount upon receipt of its first written demand, without the Procuring Agency having to substantiate its demand, provided that in its demand the Procuring Agency will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including **thirty (30) days** after the period of Bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

---

[Signature]

**8.12. INTEGRITY PACT**  
*(For each Lot separately)*

- **To be signed by the awardee**

**DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.  
PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN  
CONTRACTS WORTH RS. 10.00 MILLION OR MORE**

Contract No. \_\_\_\_\_ Dated \_\_\_\_\_  
Contract Value: \_\_\_\_\_  
Contract Title: \_\_\_\_\_

..... [Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of the Punjab (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by GoP through any corrupt business practice.

Without limiting the generality of the foregoing, [name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and 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 natural 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 consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] 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.

[Name of Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, 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 rights 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, [name of Supplier] agrees to indemnify 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 times the sum of any commission, gratification, bribe, finder's fee or kickback given by [name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

Name of Employer: .....  
Signature: .....

[Seal]

Name of Contractor: .....  
Signature: .....

[Seal]

## Section IX- Check List

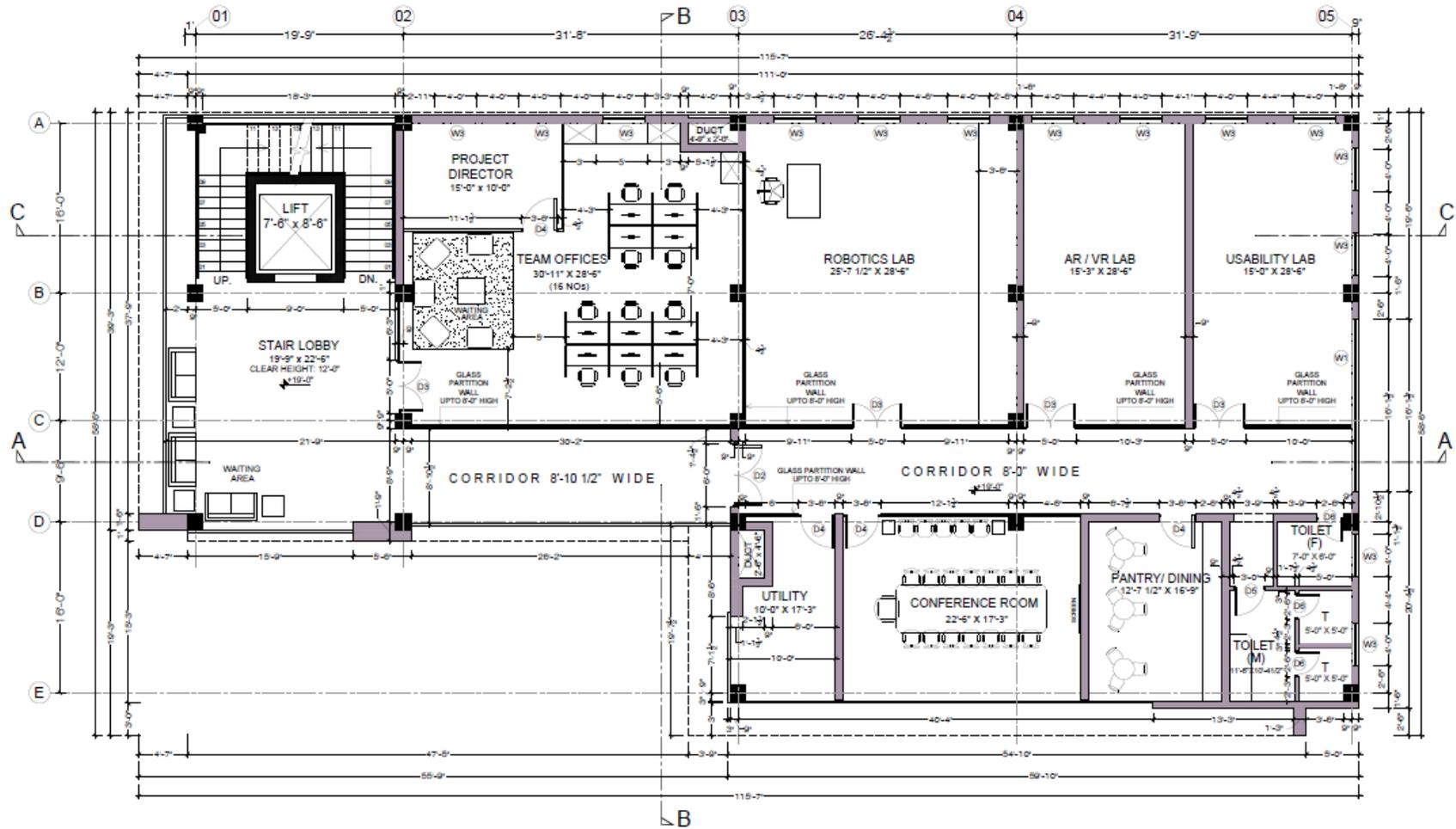
*(For each Lot separately)*

- The provision of this checklist is essential prerequisite along with submission of Bid.
- Please fill **(YES, NO, N/A)** or **“Check Mark”** the relevant columns, mark the Section Number, and attach this Checklist on top of the Technical Proposal.

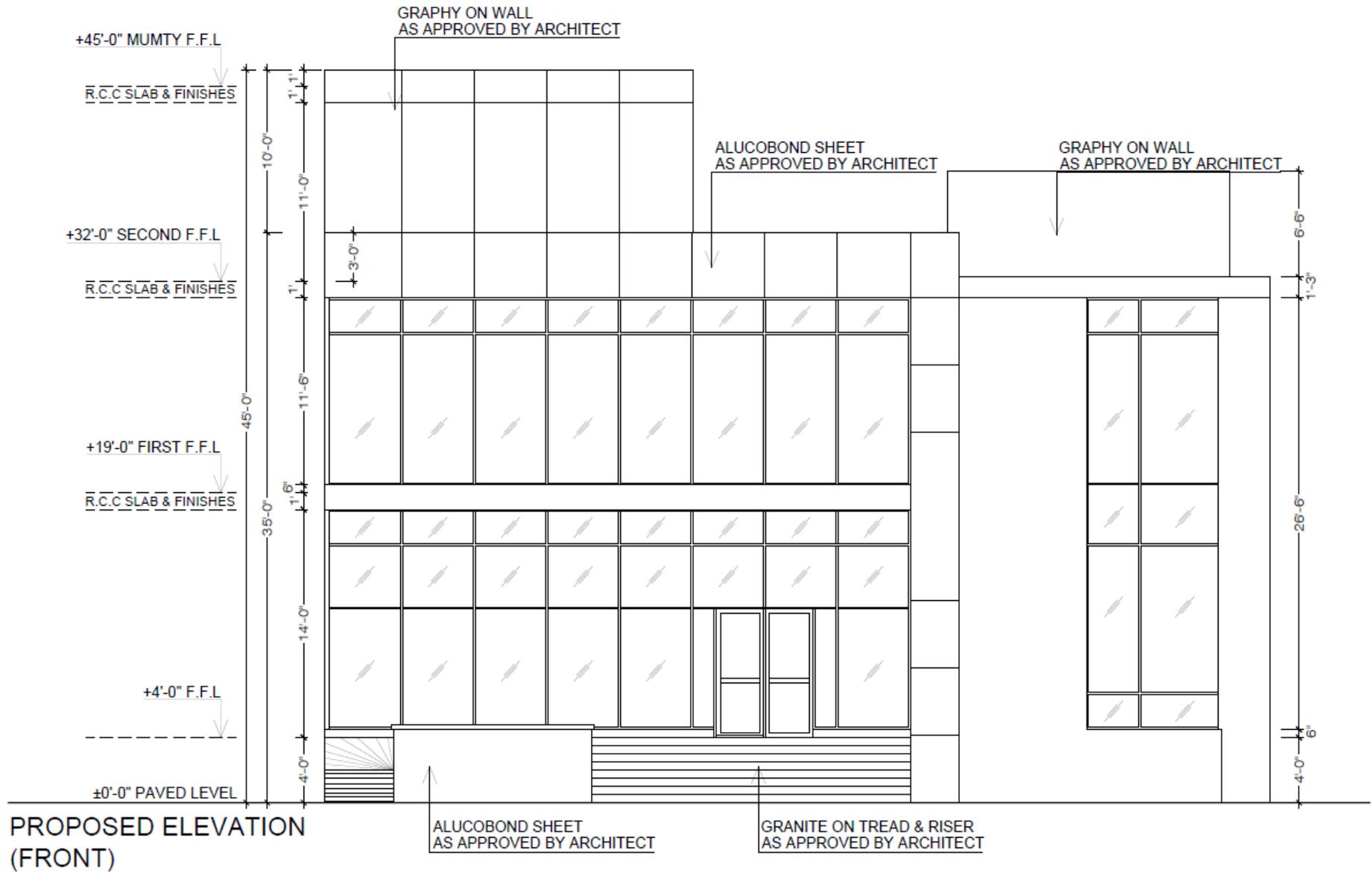
SECTION No.	Description/Documents	Technical Proposal	Financial Proposal
1	<b>Technical Bid Form &amp; Compliance Table</b> (as per <b>form 8.8</b> of Bidding documents) on letter head of the firm, duly signed and stamped.		
2	<b>Original Bid Security Instrument</b> (Bank Guarantee, Bank call-deposit (CDR), Demand Draft (DD), Pay Order (PO) or Banker’s cheque).		
3	<b>Original Bid form</b> (as per <b>form 8.1</b> of Bidding documents) on letter head of the firm, duly signed and stamped.		
4	<b>Bidder Information Form</b> (as per <b>form 8.4</b> of Bidding documents) on letter head of the firm, duly signed and stamped.		
5	<b>General Information Form</b> (as per <b>form 8.5</b> of Bidding documents) on letter head of the firm, duly signed and stamped.		
6	<b>Copy of Registration with Income Tax Authorities - National Tax Number (NTN)</b>		
7	<b>Copy of Registration with relevant Sales Tax Authorities</b>		
8	<b>Copy of Income Tax and Sales Tax (Operative Status)</b>		
9	<b>Affidavit (as per form 8.6) on non-judicial Stamp Paper of Rs. 100/- or Official Letter-head:</b> (i) The firm is not blacklisted by the procuring agency and PPRA. (ii) The documents/photocopies provided by the firm with its Bid are authentic. (In case of any fake/bogus document found at any stage of the procurement process, the firm shall be black listed as per Rules / Laws.) (iii) The firm certify the correctness of information. (iv) The firm comply with Section – III “Technical Specifications”, and Section – VII “Schedule of Requirements” of the Bidding Document. (v) The firm comply with all terms & conditions mentioned in the Bidding Documents. (vi) The firm comply that its Bid is valid for 90 days after opening of the E-Bid. (vii) The firm certifies that if awarded the contract, the procuring agency may deduct all the relevant taxes and duties, from its invoice, as applicable. (viii) The firm undertakes that it shall provide the Performance Guarantee and sign the formal contract within fifteen (15) days of the issuance of notification of award/Letter of Intent (LOI).		
10	Joint Venture (JV) Agreement and Bidder s JV Member information as per form 8.2		
11	<b>Authorization Documents/Mal/MAF/Certificates/Licenses/Verifiable Links etc. or any other documentary evidence to the same effect</b> , as per the Evaluation Criteria		
12	<b>Relevant Past Experience Documents</b> , as per the Evaluation Criteria, on letter head of the firm, duly signed and stamped.		
13	<b>All required samples (if demanded)</b> have been submitted to <i>[name of the Procuring Agency/Department/Team]</i> or attached with the Technical Proposal.		
14	<b>Financial Bid Form</b> (as per <b>form 8.10</b> of Bidding documents) on letter head of the firm, duly signed and stamped.		
15	<b>Bid Security Form</b> (as per <b>form 8.11</b> of Bidding documents)		
16	<b>Copy of Bid Security Instrument</b> (Bank Guarantee, Bank call-deposit (CDR), Demand Draft (DD), Pay Order (PO) or Banker’s cheque).		

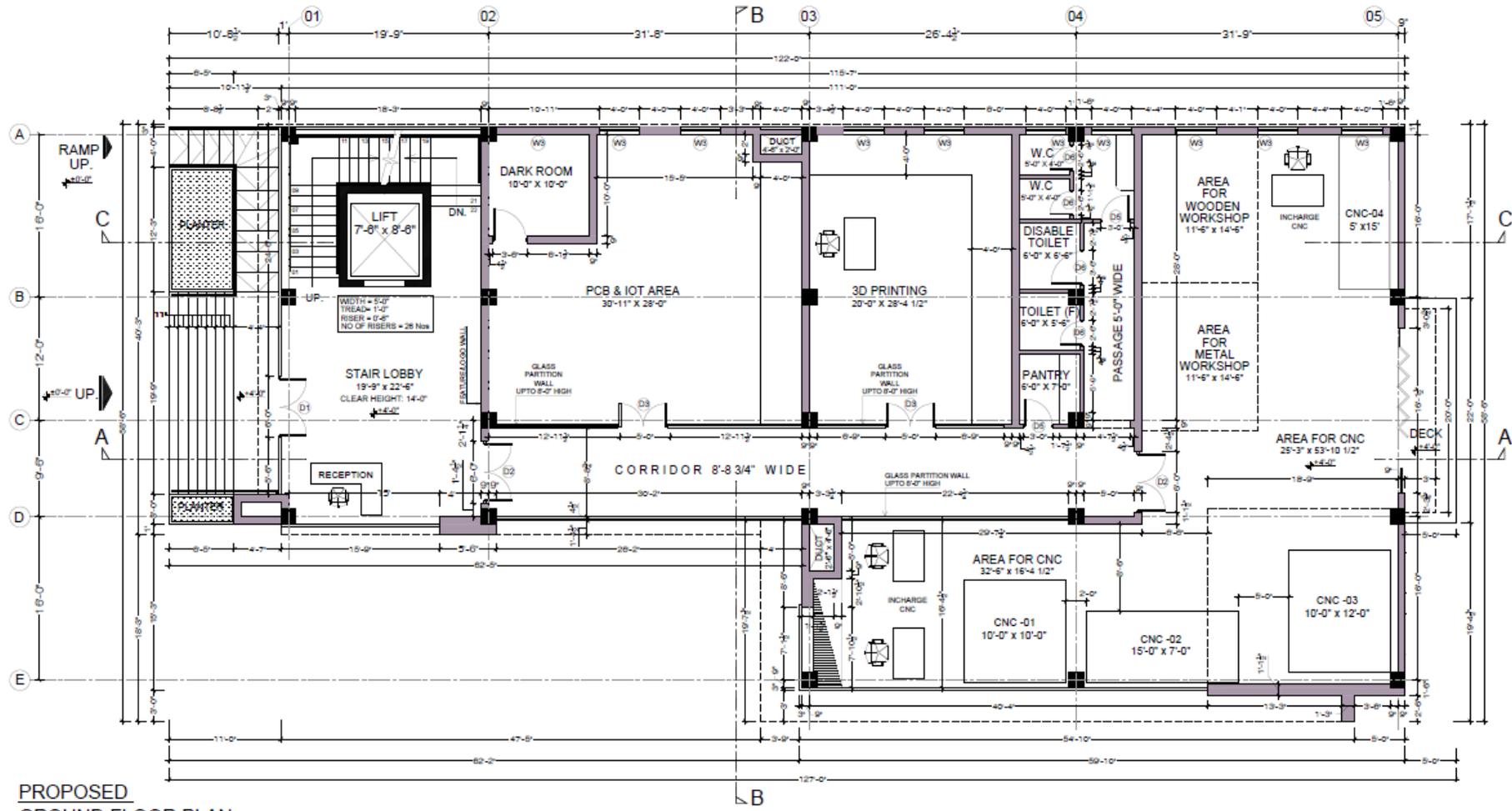
**Stamp & Signature of Bidder \_\_\_\_\_**

Annexure – A



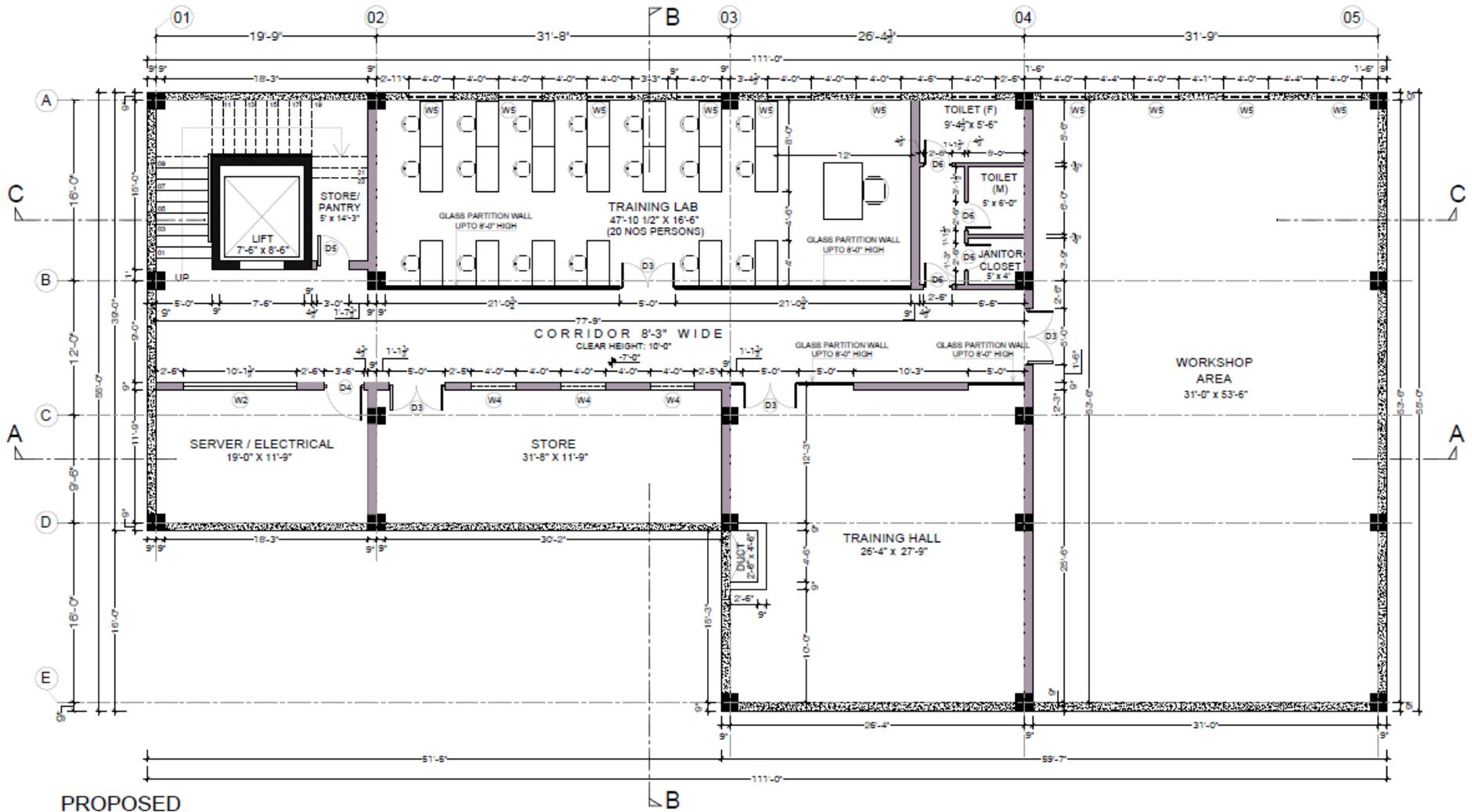
PROPOSED  
FIRST FLOOR PLAN  
COVERED AREA = 5890 Sft





**PROPOSED**  
**GROUND FLOOR PLAN**  
 COVERED AREA = 5460 Sft





**PROPOSED**  
**LOWER GROUND FLOOR PLAN**  
 COVERED AREA = 5270 Sft

