



राजस्थान-सरकार

तकनीकी शिक्षा निदेशालय, राजस्थान, जोधपुर

क्रमांक :- एफ ( )तशिनि/ई-5/2024-2025/7868

दिनांक :-27.08.2024

ई-निविदा सूचना संख्या 01/2024-2025

तकनीकी शिक्षा निदेशालय, जोधपुर द्वारा विभिन्न राजकीय पॉलिटेक्निक महाविद्यालयों की यांत्रिकी शाखा के लिए उपकरण, मशीनरी उपापन हेतु कुल राशि रुपये 604 लाख मात्र हेतु इच्छुक सक्षम निविदादाताओं से निर्धारित प्रपत्र में ई-टेण्डरिंग प्रक्रिया के अंतर्गत ऑन लाइन निविदा आमंत्रित की जाती है। निविदा की प्रारंभ तिथि एवं समय दिनांक 30.08.2024 सायं 06:00 बजे एवं अंतिम तिथि व समय दिनांक 23.09.2024 सायं 06:00 बजे तथा तकनीकी निविदा खोलने की तिथि दिनांक 24.09.2024 प्रातः 11:00 बजे रहेगी। निविदा से संबंधित अन्य समस्त विवरण इंटरनेट वेबसाइट [www.eproc.rajasthan.gov.in](http://www.eproc.rajasthan.gov.in), [www.sppp.rajasthan.gov.in](http://www.sppp.rajasthan.gov.in) एवं [www.dte.rajasthan.gov.in](http://www.dte.rajasthan.gov.in) पर उपलब्ध है।

UBN No.: TED 2425 A 00009

TED 2425 9LOB 00000

  
निदेशक, तकनीकी शिक्षा

**निविदा सम्बन्धी दस्तावेज निम्नानुसार अपलोड करावें। (चैकलिस्ट)**

क्र. सं.	विवरण	पेज नम्बर
1.	Scanned copy of Bid document	3
2.	Instruction to Bidder document Duly Signed and Sealed	4 to 6
3.	General condition of Tender Duly signed & sealed	7 to 10
4.	S.R. 16 Duly Signed and Sealed	11 to 18
5.	ANNEXURE-A	19
6.	ANNEXURE-B	20
7.	ANNEXURE-C	21 to 22
8.	FORM NO. 01	23
9.	ANNEXURE- D	24
10.	ANNEXURE-E	25
11.	ANNEXURE-F	26
12.	ANNEXURE-G	27
13.	ANNEXURE-I	28
14.	ANNEXURE-J	29
15.	ANNEXURE-K	30
16.	ANNEXURE-L, L-1, L-2	31, 32, 33
17.	ANNEXURE-M	34 to 35
18.	ANNEXURE-N	36
19.	ANNEXURE-O	37
20.	ANNEXURE-P	38
21.	ANNEXURE-Q	39
22.	ANNEXURE-R	40
23.	ANNEXURE-S	41

24.	GST Registration Certificate and GST Challan	
25.	Scanned copy of PAN card	
26.	Technical Specification Annexure –H(original downloaded &(original uploaded otherwise bid should not be considered.)	
27.	Annual Turnover Certificate from Chartered Accountant (Letter Head with seal, e-mail address, Mobile Number, Firm full address)	
28.	Literature/Leaflets/Catalogue	
29.	Authorization Certificate	
30.	Scanned copies of Bid Fee DD / E-Gras Challan Rs. 2000/- submit to Director, Technical Education, Jodhpur	
31.	Scanned copies of Bid Security DD E-Gras Challan Rs. 1208000/-submit to Director, Technical Education, Jodhpur	
32.	Scanned copies of BidProcessing DD / E-Gras Challan Rs 2500/- submit to MD RISL.	
33.	Any other Document	
34.	Authorization of Digital Signature (if applicable)	
35.	Scanned copy of power of Attorney to sign the Tender document (If Required)	
<b>COVER – II : Financial/Price Bid/BOQ (.xls)</b>		
36.	Price bid/BOQ Details of Price quoted of the material offered in Price bid/ BOQ	

निम्नांकित बिन्दुओं की पालना अवश्य ही करें :-

- लीफलेट/केटलॉग/लिट्रेचर प्रत्येक आईटम अनुसार होना चाहिये (जिसमे मैन्यूफेक्चर का पूरा नाम, पत्राचार व्यक्ति के मोबाईल नम्बर/दूरभाष नम्बर/ई-मेल पूर्ण अंकित हो) जिस पर एनेक्शर "एच" के किस क्रम संख्या से सम्बन्धित है क्रम संख्या अंकित करावें।
- अगर आपको क्रयादेश जारी किया जाता है तो क्रयादेश में वर्णित आपूर्ति अवधि में सामानों की आपूर्ति करावें। अगर किन्ही परिस्थितियों के दृष्टिगत आप समयावधि में आपूर्ति नहीं कर सकते हैं तो आपूर्ति अवधि समाप्त होने से पहले विभाग को लिखित में सूचित करेंगे, अन्यथा संस्था प्रधान द्वारा आपूर्ति स्वीकार नहीं की जायेगी। नियमानुसार निदेशालय द्वारा आपूर्ति अवधि बढ़ाने के पश्चात् ही सामानों की आपूर्ति करावें।
- एनेक्शर "एच" जो डाउन लोड किया जायेगा उस में सूचना भरकर उसी को अपलोड किया जायेगा आपके लेटर पर एनेक्चर "एच" तैयार कर अपलोड नहीं किया जायेगा। फिर भी आपके द्वारा फर्म के लेटर पर अलग से एनेक्चर एच तैयार कर अपलोड किया जायेगा तो उस निविदा को रिजेक्ट कर दिया जावेगा। जिसके सम्बन्ध में किसी प्रकार के पत्राचार पर विचार नहीं किया जायेगा।
- क्रम संख्या 1 से 23 के डोक्यूमेन्ट डाउन लोड करने के पश्चात पूर्ण सूचना भर पुनः अपलोड किया जायेगा। फर्म के लेटर पर क्रम संख्या 1 से 23के डोक्यूमेन्ट तैयार कर अपलोड नहीं किये जायेंगे।
- निविदा भरने में या किसी प्रकार का संशय हो तो दूरभाष संख्या 0291-2434271, 2434395 पर प्रातः 11.00 बजे से दोपहर 4.00 बजे तक वार्ता कर सकते हैं।

I/we have carefully read and understood above instruction

**Signature of bidder with seal**

.....  
**BID DOCUMENT FORM**

1. Name of item :- Mechanical Lab Items.
2. Name & full address of the firm submitting the bid along with Tel. No., Fax No. & e-mail/  
Mobile No.  
**M/s :** .....  
**Full Address :** .....  
**Tel. No./FAX/Mobile :** .....  
**e-mail :** .....
3. Addressed to :-**Director (Education), Directorate of Technical Education Rajasthan,  
Jodhpur- 342032** (e-mail :- dte\_raj@rajasthan.gov.in)
4. Reference : e-Tender Notice No 1/2024-25 Dated 27.08.2024
5. The estimated cost of the tender is Rs. 604 Lakhs. The Processing fee ofRs. 2500/-, Bid feeRs. 2000/- and Bid Security (EMD) Rs. 1208000/- should be deposited vide Demand Draft or vide e-GRAS challan in concern head.
6. All documents required as per bid documents are enclosed.
7. Goods will be delivered within the stipulated delivery period from the date of the supply order at the designated place mentioned in the work order which may be subject to change as per requirement of the department.
8. I/ We agree to abide by all the Terms & conditions mentioned in e-Tender Notice No.- 1 /2024-25 dated 27.08.2024 issued by the Department and also agree to further Terms & Conditions including general conditions of the said tender notice given in the attached sheets (all the pages, all document, all document Check list S.N. 1 to 35 and other required document of which has enclosed signed with stamp by me/ us in token of my/our acceptance of the terms & condition mentioned therein)otherwise concerned Tender will not be considered for Technical Evaluation full responsibility by me.

**SIGNATURE OF THE BIDDER  
WITH SEAL AND DESIGNATION**

\*The words bid or tender and bidder or tenderer where ever mentioned in attached documents are synonyms and having same meaning.

GOVERNMENT OF RAJASTHAN  
DIRECTORATE OF TECHNICAL EDUCATION RAJASTHAN, JODHPUR

**Instruction to Bidders for Online Bidding (e-Tendering)**


Information to be disseminated to prospective bidder regarding on line Bidding.

1.	The Bid document can be downloaded from web site <a href="http://eproc.rajasthan.gov.in">http://eproc.rajasthan.gov.in</a> & submitted online in electronic format on same web site.		
2.	Office address :- Director (Education), Directorate of Technical Education Rajasthan, Jodhpur-342032 Phone-0291-2434271 e-mail ID: dte_raj@rajasthan.gov.in		
3.	To participate in online Bids, Bidders will have to possess Digital Signature Certificate (type II or type III) as per information Technology Act-2000 using which they can sign their electronic bids, Bidder can procure the same from any CC approved certifying agency, i.e. TCS safecrypt, Ncode etc. or they may contact e-procurement Cell Department of It & C, Government of Rajasthan for further assistance: Bidder who already have a valid Digital Certificate need not required to procure a new Digital Certificate. Contact No. : 0141-4022688 (Help desk 10 am to 6 pm on all working days) E mail: eproc@rajasthan.gov.in Address: e-Procurement Cell, RISL, Yojna Bhawan, Tilak Marg, C-Scheme, Jaipur.		
4.	Bid Procedure	Twostage opencompetitivee-Bid procedureat <a href="http://eproc.rajasthan.gov.in">http://eproc.rajasthan.gov.in</a>	
	Bid Evaluation Criteria (Selection Method)	LeastCostBasedSelection(LCBS)-L1 Bidder with the <b>lowest cumulative value</b> of the financial bid i.e. ( <b>Lowest financial cost after adding the cost of all the items</b> ) shall be declared as L1 bid.	
5.	Before electronically submitting the Bid, it should be ensured that all Bid papers including conditions of contract etc. are digitally signed by the Bidder and filled up as per the Bid Guidelines.		
6.	Training for the bidders on the usage of e-tendering System is also being arranged by RISL on regular basis. Bidders interested for training may contact e-Procurement Cell, RISL for booking the training slot.		
7.	Bidders are also advised to refer “Bidders manual” available under “Downloads” section for further details about the e-tendering process.		
8.	<p>The tenderer should submit the original Bid security fee,Bid fee and Bid processing fee vide Demand Draft or eGRAS Challan at office premises before opening of Technical Bid. Instructions are as follows :-</p> <p><b><u>Demand Draft</u></b> Bid fee worth Rs. 2000/- and Bid Security Fee worth Rs. 1208000/- shall be deposited in favour of “Director, Directorate of Technical Education, Jodhpur” payable at Jodhpur and Bid Processing Fee worth Rs. 2500/- shall be deposited in favour of “MD, RISL” payable at Jaipur</p> <p><b><u>eGRAS Challan</u></b> Bid fee challan worh Rs. 2000/- shall be deposited in the following head <b>0075-00-800-(52)-[01]</b> Bid Security Fee Challan worth Rs. 1208000/- shall be deposited in the following head <b>8443-103-108-109</b> Bid Processing Fee single Challan worth Rs. 2500/- shall be deposited in the following head <b>8658-00-102-(16)-[01]</b></p>		

9.	<p><b>Technical Bid (First Cover in pdf) failing which Bid is liable to be rejected.</b></p> <p><b><u>As per point no 8 of General Conditions of Tender.</u></b></p> <p><b>Second cover (Financial/Price bid/BOQ-xls)</b> should contain details of price quoted in BOQ.</p> <p>In absence of the above or wrongly placing the required documents in any other cover or not mentioning the desired information at the specified place/ column, the bid may not be considered and will be rejected. The provisions of RTPP Rules 2013 &amp; RTPP Act 2012 and Finance Department, Government of Rajasthan, orders and circulars will prevail in this regard.</p>
10.	<p>Incomplete &amp; conditional Bid in any respect will be rejected without any information.</p>
11.	<p>The Director (Education), Directorate of Technical Education Rajasthan, Jodhpur reserves the right to reject all/ any part of Bid received from the firms/ Bidders without assigning any reason thereof.</p>
12.	<p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1) Bidder (authorized signatory) shall submit their offer on-line in electronic formats both for technical and financial proposal. However, BC/DD/e-Gras Challan for Bid document Fees, RISL Processing Fees and Bid Security should be submitted physically at the office of procurement entity before opening of technical bid and scanned copy of same should also be uploaded along with the technical Bid/ cover.</li> <li>2) In case, any of the bidders fails to physically submit the Banker's Cheque/ Demand Draft/e-Gras challan for Bid document Fees, Bid Security, and RISL Processing Fee before opening of technical bid, their Bid shall not be entertained. The Banker's Cheque/ Demand Draft/e-Gras Challan for RISL Processing Fee should be drawn in favour of "MD, RISL." payable at "Jaipur", Bidding document fee and Bid Security should be drawn in favour of "DIRECTOR, DIRECTORATE OF TECHNICAL EDUCATION, JODHPUR" from any Scheduled Commercial Bank as per point no. 8 as above.</li> <li>3) DTE will not be responsible for delay in online submission due to any reason. For this, bidders are requested to upload the complete bid well advance in time so as to avoid 11th hour issues like slow speed; choking of web site due to heavy load or any other unforeseen problems.</li> <li>4) No contractual obligation whatsoever shall arise from the bidding document/ bidding process unless and until a formal contract is signed and executed between the procuring entity and the successful bidder.</li> <li>5) Procurement entity disclaims any factual/ or other errors in the bidding document (the onus is purely on the individual bidders to verify such information) and the information provided therein are intended only to help the bidders to prepare a logical bid-proposal.</li> <li>6) The provisions of RTPP Act 2012 and Rules, 2013 shall be applicable for this procurement.</li> </ol>

2152  
Furthermore, in case of any inconsistency in any of the provisions of this bidding document with the RTTP Act 2012 and Rules, 2013 the later shall prevail.

- 7) Each bidder shall submit only one bid. Multiple bids submitted by a bidder shall be summarily rejected.

  
**DIRECTOR (EDUCATION)  
TECHNICAL EDUCATION RAJASTHAN  
JODHPUR**

I/we have carefully read and understood above instruction

**Signature of bidder with seal**

**GENERAL CONDITIONS OF TENDER**

01. The bidders are requested to submit their bids prior to last date of submission to avoid Non-submission of their bids up to prescribed date due to non-availability of / hanging of website at last moments. The date of submission of bids will not be extended if system is hang up in last hours or congestion.
02. In case, the date fixed for opening of the tenders be declared as a public holiday, the bid shall be opened on the next date on which office re-opens after such holiday(s).
03. Physical submission of bids is not allowed.
04. Tenders shall be valid for a minimum period of **90 days** after the date of opening of tender. Tender mentioning a shorter validity period than specified are likely to be rejected.
05. The bidders who are interested in bidding can download tender documents from **[www.eproc.rajasthan.gov.in](http://www.eproc.rajasthan.gov.in)** up to the stipulated date & time.
06. The bids will have to be Digitally signed by the bidder and submitted online in two covers in electronic format only on website **[www.eproc.rajasthan.gov.in](http://www.eproc.rajasthan.gov.in)**
07. Furnishing of tender offer shall be strictly in the manner as prescribed in Instructions to bidder and terms & conditions of tender, failing which the tender is liable for rejection.
08. The following documents are to be uploaded in **Two covers** of the bid  
**(A) TECHNICAL BID (First cover-pdf) :** The following documents are to be attached failing in which the bid is liable to be rejected :-
  - a. Scanned copies of Demand Draft or e-GRAS Challan of Bid fee, Bid Security, Bid Processing Fee as per point 8 of Instruction to Bidders for Online Bidding.
  - b. Scanned copies of Bid document form along with Conditions of tender (SR-16) & General Terms & Conditions duly signed and sealed.
  - c. Copies of acknowledgement of GST returns for the Latest quarter of the Current Financial Year (2024-25) are to be submitted along with G.S.T. registration certificate.
  - d. Instructions to bidders document duly signed & sealed by the bidder.
  - e. All the technical specification and details of the tendered item and technical specification in tabular form must be submitted as indicated at Annexure - H
  - f. Price charging certificate as per (Annexure G).
  - g. Declaration by the tenderer (SR 11). (Annexure E).
  - h. Scanned copy of PAN card.
  - i. Scanned copy of catalogue/ literature/ leaflet and authorization certificate must be uploaded along with the bid otherwise will not be considered for technical evaluation.
  - j. Scanned copy of Power of attorney for authorized signatory to sign the tender document on Rs. 100/- Notary Stamp (if required).
  - k. Prescribed check list.

**Signature of tenderer with seal**

- l. Format of RTGS/NEFT as per Annexure -J
- m. Any other documents which the bidder wants to submit and/ or any document as per tender.
- o. The Average Annual Turnover of the bidder for last three financial years (2021-22 to 2023-24) will be minimum equal to 200% of the estimated bid value as per BID. A certificate issued by the Chartered Accountant (Showing the Annual Turnover of last three years) with their Signature, registration No. & Seal must be submitted along with the bid.
- p. Authorization certificate in Annexure-L. L-1, L-2.
- q. 2 years Warranty/Guarantee Certificate by Bidder on 100/- Rs Notary stamp paper to be submitted with Bid.
- r. All Annexures duly signed with seal.
- s. (i) Experience Criteria:-The Bidder should have regularly supplied same and similar category Machinery, Equipments and tools as per bid items to any Central / State Govt Organization / PSU / Government Undertaking Company for last 3 Financial years before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during the last three Financial year. For fulfilling the experience criteria any one of the following documents may be considered as valid proof (a) Purchase Order copy along with Invoice(s) with self-certification by the bidder that supplies against the invoices have been executed. (b) Execution / Completion certificate by concerned buyer with order value and purchase order.  
(ii) The Bidder should have executed a single order at least 500 Lacs. for same or similar category Machinery, Equipments and tools as per Bid items in at least one of the last three financial years (2021-22, 2022-23, 2023-24) to any Central / State Govt Organization/PSU /Government Undertaking Company. For fulfilling the Past Experience criteria any one of the following documents may be considered as valid proof (a) Purchase Order copy along with Invoice(s) with self-certification by the bidder that supplies against the invoices have been executed. (b) Execution / Completion certificate by concerned buyer with order value and purchase order.  
(iii) Past performance Criteria: The Bidder should have supplied same or similar Category Products as per bid items for 90% of bid quantity, in at least one of the last three Financial years (2021-22, 2022-23, 2023-24) before the bid opening date to any Central / State Govt Organization/PSU/ Govt. Undertaking Company.  
Copies of relevant contracts (proving supply of cumulative order quantity in any one financial year) to be submitted along with bid in support of quantity supplied in the relevant financial year.  
For fulfilling the Past performance criteria any one of the following documents may be considered as valid proof (a) Purchase Order copy along with Invoice(s) with self-certification by the bidder that supplies against the invoices have been executed. (b) Execution / Completion certificate by concerned buyer with order value, purchase order and order quantity and supplied quantity of the bidder.  
**Buyer can ask to verify all the orders and received payment details which are submitted in the bid.**
- t. Bidders should provide details of service centre and information on service support facilities that would be provided after the warranty period. Manufacturer should have trained and qualified customer support staff with ample experience in the required field.

**Signature of tenderer with seal**

- u. DTE Rajasthan PERFORMANCE CLAUSE: If bidder had received purchase order from buyer's department in last three financial years, they have to submit the details with Purchase order and Invoice. Buyer can check the bidder's past performance in this Department. Such performance can be evaluated by the buyer and can accept or reject bid on this basis.
- v. The bidder of the offered products must have valid ISO certification ISO 9001:2015, 14001:2015, 45001:2018 up to bid validity.
- w. The bidder is required to submit the proof of registration as follows :-

Type of Company/ Firm	Copy of Certificate required
Company (under Companies Act)	Valid Certificate of Incorporation
Proprietorship Firm	Shop & Establishment Certificate or Professional Tax Certificate.
Partnership Firm	Partnership registration certificate of registered deed of partnership
Limited Liability Partnership	Valid Certificate of Incorporation

**Note: The bidder must upload scanned copies of all the originally downloaded documents (Duly filled and seal-signed) of this tender only.**

- 9. In absence of the above or wrongly placing the required documents in any other cover or not mentioning the desired information at the specified place/ column, the bid may not be considered and will be rejected. The provisions of RTPP Rules 2013 & RTPP Act 2012 and Finance Department, Government of Rajasthan, orders and circulars will prevail in this regard.

**(B) FINANCIAL BID (Second cover-xls) :**

It should contain details of price quoted in BOQ.

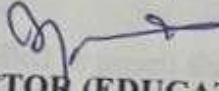
**Note:- The Financial bid of only Technically qualified bidders will be opened. The date of opening of financial bid will be displayed on [www.eproc.rajasthan.gov.in](http://www.eproc.rajasthan.gov.in) .**

- (i) Bid Evaluation Criteria(Selection Method) is Least Cost Based Selection (LCBS)- L1Bidder with the **lowest cumulative value** of the financial bid i.e. (**Lowest financial cost after adding the cost of all the items**) shall be declared as L1 bid.
- (ii)Pre-dispatch Inspection will be carried out from the representative of this Directorate, if required by the Department. However, inspection charges will be borne by the bidder.
- (iii) Bidder has to quote all the items in the bid. Evaluation will be done on the total tender value wise. NQ or Zero quoted in the BoQ will lead to rejection of bid.
- (iv) The bid will be evaluated on total value of the bid and lowest bid (i.e. L-1) will be considered for placing supply order.
- 10. The tenderers shall quote F.O.R. destination prices only. indicating the Freight inclusive of unloading and stacking and Insurance charges in Financial/Price Bid/BOQ.They will also indicate the prevailing rates of G.S.T (exclusive) in the quoted prices. If the Financial/Price Bid/BOQ is not filled completely, the offer is likely to be ignored.
- 11. Material/Equipment on order shall be required to be dispatched on "Freight paid basis".
- 12. Before electronically submitting the tenders, it should be ensured that all tender documents enlisted above including conditions of contract are signed & sealed on each & every page by the authorized representative of the firm after filling requisite information/details desired in the specification & Qualifying Requirement.

**Signature of tenderer with seal**

- 2157
13. All tenders, in which any of the prescribed conditions are not fulfilled or which have been vitiated by errors in calculations, totaling or other discrepancies or which contain over writing in figures or words or corrections not initialed and dated, may be liable to rejection.
  14. The supplier/ contractor shall furnish particulars to the payment making authorities of DTE in prescribed format to be provided by the purchaser. **(Annexure- J)**
  15. No conditional tenders shall be accepted and will be rejected summarily forthwith.
  16. The DTE reserves the right to cancel the tender at any time without assigning any reasons. The DTE does not bind himself to accept the lowest or any tender or any part of the tender and shall not assign any reason(s) for the rejection of any tender or a part thereof.
  17. No refund of tender fee is claimable for tenders not accepted or forms not submitted.
  18. Payment of Bill will be made by **Director (Education), Technical Education, Jodhpur** after the receipt of material and found to entire satisfaction and as per specification and good conditions mentioned there in supply order.
  19. The supply will be accepted only on working day in the office working hours.
  20. The Tenderer would provide Guarantee for an appropriate period from the date of delivery of the said goods in good conditions. During Course of Guarantee period, the items will have to got replaced **FREE OF COST** at Concerning Institute.
  21. Quantity of items can be increased/decreased/cancelled. Department is competent to accept/refuse the Tender/Tenders without quoting any reason thereof.
  22. **All applicable statutory deductions regarding GST, income tax etc. are to be made from the suppliers bill.**
  23. All other Terms and conditions of GF&AR and Rajasthan Transparency in Public Procurement Act, 2012, Rajasthan Transparency in Public Procurement Rule, 2013 and Finance Department, Government of Rajasthan, orders and circulars shall be applicable.

Enclosed : As Above

  
**DIRECTOR (EDUCATION)**  
**TECHNICAL EDUCATION RAJASTHAN**  
**JODHPUR**

Signature of tenderer with seal

GOVERNMENT OF RAJASTHAN  
**DIRECTORATE OF TECHNICAL EDUCATION RAJASTHAN, JODHPUR**  
W-6,GAURAV PATH, JODHPUR. Phone-0291-2434271Fax-2430398  
Visit us: [www.dte.rajasthan.gov.in](http://www.dte.rajasthan.gov.in) e-mail ID: [dte\\_raj@yahoo.com](mailto:dte_raj@yahoo.com)

.....

**"CONDITIONS OF TENDER AND CONTRACT FOR OPEN TENDER"**

**Note :** Tenderers should read these conditions carefully and comply strictly while sending their tenders.

1. Tenders are hereby invited in e-tender system for purchase of Mechanical Lab Items. Tenders are to be submitted online in electronic format on website <http://eproc.rajasthan.gov.in>. The tender document/specification can be downloaded from above mentioned website
- 2.1 Any change in the constitution of the firm, etc. shall be notified forthwith by the contractor in writing to the purchase officer and such change shall not relieve any former member of the firm, etc. from any liability under the contract.
- 2.2 No new partner/partners shall be accepted in the firm by the contractor in respect of the contract unless he/they agree to abide by all its terms, conditions and deposit with the purchase officer a written agreement to this effect. The contractors receipt for acknowledgement or that of any partners subsequently accepted as above shall bind all of them and will be sufficient discharge for any of the purpose of the contract.
3. Tenderer will have to submit copy of GST Registration Certificate duly attested by the Tenderer without which tender may not be considered.
4. Tenderer will have to submit copy of PAN CARD duly attested by the Tenderer without which tender may not be considered.
5. Tender forms shall be filled in ink or typed. No Tender filled in pencil shall be considered. The Tenderer shall sign the Tender form at each page and at the end including amendment sheet enclosed in token of acceptance of all the terms and conditions of the tender.
6. Rate shall be written both in Words and Figures. There should not be errors and or over writing. Correction if any, should be made clearly and initialed with dates. The Rates should mention element of the G.S.T. separately.
7. The tenderers shall quote F.O.R. destination prices only. indicating the Freight inclusive of unloading and stacking and Insurance charges in Financial/Price Bid/BOQ.They will also indicate the prevailing rates of G.S.T (exclusive) in the quoted prices. If the Financial/Price Bid/BOQ is not filled completely, the offer is likely to be ignored.

**Signature of tenderer with seal**

8. 8.1 Preference to Local Industries Registered with the Director of Industries. Rajasthan, Jaipur over the Tendering Units, outside the State of Rajasthan as per the policy approved by the government will be operative.
- 8.2 Under the different situations between local tendering unit of S.S.I. Rajasthan and outside the State of Rajasthan the policy as laid down by the Government will be operative & rule amended up to date shall be applicable. (Amended vide Finance Department Order No. F-15 (1) FD/CSPO/9608/2000 Date 21/03/2000).
9. **VALIDITY** : Tenders shall be valid for a period of **90 days** from the date of opening of Tender.
10. The approved supplier shall be deemed to have carefully examined the conditions, specifications, size, Make and drawings, etc. of the goods to be supplied. If he has any doubts as to the meaning of any portion of these conditions or of the specifications, drawing, etc. he shall before signing the contract, refer the same to the purchase officer and get clarification
11. The contractor shall not assign or sublet his contract or any substantial part thereof to any other agency.
- 12.1 **SPECIFICATIONS** : All article supplied shall strictly confirm to specifications. Those articles should confirm strictly to those specification as mentioned in Schedule-‘H’.
- 12.2 The supply of articles marked with a struck/at serial number shall in addition, conform strictly to the approved samples(if demanded during technical evaluation).The supply shall be of the very best quality. The supply of articles should be in accordance with the samples. If any discrepancy, the decision of the buyer shall be final and binding on the tenderers.
- 13.1 **WARRANTY/GUARANTEE CLAUSE** : The Tenderer would give guarantee that the goods/stores/ articles would continuous to confirm to the description and quality as specified for a minimum period of **24 Months** from the date of delivery of the said goods/stores/articles to be purchased and that not with standing the fact that the purchasing entity may have inspected and/or approved the said good/stores if during the aforesaid period of 24 months. The said goods/stores/articles to discovered to confirm to the description and quality aforesaid or have determined (and the decision of the buyer in that behalf will be final and conclusive). The procuringentity will be entitled to reject the said goods/stores/articles or such portion thereof as may be discovered not to confirm to the said description and quality, on such rejection the goods/articles/stores will be at the seller's risk and all the provision relating to rejection of goods. etc. shall apply. The tenderer shall if so called upon to do replace the goods, etc.or such portion there of as is rejection by the purchase committee, otherwise the tenderer shall pay such damage as may arise by reason of the breach of the condition here incontained. Nothing here in contained shall prejudice any other right of the purchase officer in that behalf under this or otherwise.

**Signature of tenderer with seal**

- 13.2 In case of machinery and equipment also guarantee will be given as mentioned in clause 13 (i) above and the tenderer shall during the guarantee period replace the parts if any remove any manufacturing defect if found during the above period so as to make machinery and equipment operative. The Tenderer shall also replace machinery and equipments in case it is found defective which cannot be put to operations due to manufacturing defect etc.
- 13.3 In case of machinery and equipment specified by the purchase officer the tenderer shall be responsible for carrying out annual maintenance and repairs on the terms and conditions as may be agreed. The Tenderer shall also be responsible to ensure adequate regular supply of spare parts needed for as specific type of machinery and equipment whether under their annual maintenance and repairs rate contract or otherwise. In case of change of model he will give sufficient notice to the purchase officer who may like to purchase spare parts from them to maintain, the machinery and equipment in perfect condition.
- 14.1 **INSPECTION:**Pre-dispatch Inspection will be carried out from the representative of this Directorate, if required by the Department. However, inspection charges will be borne by the bidder.
- 14.2 The tenderer shall furnish complete address of the premises of his office, godown and workshop where inspection can be made together with name and address of the person who is to be contacted for the purpose. In case of those dealers who have newly entered in business a letter of introduction from their bankers will be necessary.
15. **SAMPLES:**If required, the bidder will have to submit samples of items after opening of technical bid on demand, this will be part of technical evaluation.
16. Each samples shall be marked suitable either by written on the sample or on a slip or durable paper securely, fastened to the sample the name of the tenderer and serial number of the item, of which it is a sample in the schedule.
17. Approved samples would be retained free of cost up to the period of six month after the expiry of the contract. The government shall not be responsible for any damage, wear and tear or loss during testing, examination etc. during the period these samples are retained. The samples shall be collected by the tenderer on the expiry of the stipulated period. The Government shall in no way make arrangements to return the samples. The samples uncollected within 9 months after expiry of contract shall be forfeited by the government and no claim for their cost etc. shall be entertained.
18. Sample not approved shall be collected by the unsuccessful tenderers. The government will not be responsible for any damage, wear and tear or loss during testing examination etc. During the period these samples are retained. The uncollected samples shall be forfeited and no claim for their cost etc. shall be entertained.

**Signature of tenderer with seal**

19. 19.1 REJECTION : Article not approved during inspection shall be rejected and will have to be replaced by the tenderer at his own cost within the time fixed by the buyer.
- 19.2 If however due to exigencies of government work, such replacement either in whole or in part, is not considered feasible, the purchase officer after giving a opportunity to the tenderer of being heard shall for reasons to be recorded, deduct a suitable amount from the approved rates. The deduction so made shall be final.
20. The rejected articles shall be removed by the tenderer within 15 days of intimation of rejection after which purchase officer shall not be responsible for any loss, shortage or damage and shall have the right to dispose of such articles as he thinks fit, at the tenderer risk and on his account.
21. The tenderer shall be responsible for the proper packing so as to avoid damage under normal condition of transport by sea, rail and road or air and delivery of the material in good condition to be consignee at destination. In the event of any loss and breakage or leakage or any shortage the tender shall be liable to make good such loss and shortage found at the check/inspection of the materials by the consignee. No extra cost on such account shall be admissible.
22. The contract for the supply, can be repudiated at any time by the purchase officer, if the supplies are not made to his satisfaction after giving an opportunity to the tenderer of being heard and recording of the reasons for repudiation.
23. Direct or Indirect canvassing on the part of the tenderer or his representative will result in disqualification.
24. 24.1. **DELIVERY PERIOD**

The Tenderer whose tender is accepted shall arrange supplies within a period as mentioned below from the date of supply order-

S.No.	Items	Quantity	Delivery Period
As per Bid			Up to 30 days

- 24.2. At the time of award of contract, the quantity of goods, works or services originally specified in the bidding documents may be increased/decreased, but such increase shall not exceed 50% of the quantity specified in the bidding documents. It shall be without any change in the unit prices or other terms and conditions of the bid and the bidding documents.
- 24.3 If the procuring entity does not procure any subject matter of procurement or procures less than the quantity specified in the bidding documents due to change in circumstances, the bidder shall not be entitled for any claim or compensation except otherwise provided in the bidding documents.
- 24.4 Repeat orders for extra items or additional quantities may be placed on the rates and conditions given in the contract. Delivery or completion period may also be proportionately increased. The limits of repeat order is 50% of the value of original contract shall not be exceeded in any case.
25. 25.1 EARNEST MONEY: Tender shall be accompanied by an earnest money as mentioned in tender document, without which tenders will not be considered.

**Signature of tenderer with seal**

**25.2 REFUND OF EARNEST MONEY :** The Earnest Money of unsuccessful tenderers shall be refunded soon after a final acceptance of tender.

**25.3 PARTIAL EXEMPTION FROM EARNEST MONEY :-** Firms which are registered with Director of Industries, Rajasthan shall furnish the amount of earnest money in respect of items for which they are registered as such subject to their furnishing registration certificate in original or Self Attested Photostat copy issued from the Director of Industries, Rajasthan at the rate of 0.5 % of the estimated value of the tender shown in N.I.T. and as per RTPP Act 2012 and Rules 2013 and finance order and circulars.

**25.4** The Central Government and Government of Rajasthan under taking need not furnish any amount of earnest money.

**25.5** The earnest money/security deposit lying with the department/office in respect of other tenders awaiting approval or rejected or on account of contracts being completed will not be adjusted towards Earnest Money/Security Money for the fresh tenderer.

**26. FORFEITURE OF EARNEST MONEY(as per declaration) :** the Earnest Money will be forfeited in the following cases :

- i. When tenderer withdraws or modifies the offer after opening of tender but before acceptance of tender.
- ii. When tenderer does not execute the agreement, any other formality required by Department, if any, prescribed within the specified time.
- iii. When tenderer does not deposit the performance security Money after the supply order is given.
- iv. When he fails to commence the supply of the items as per supply order within the time prescribed.
- v. If the bidder breaches any provision of code of integrity prescribed for bidders specified in the Act and chapter VI of RTPP rules 2013.

**Signature of tenderer with seal**

## **AGREEMENT AND SECURITY DEPOSIT (Performance Security) :-**

- 27.1 i. Successful tenderer will have to execute an agreement in the **Form 17** (on non-judicial Stamp Paper of the value Rs. 500/-or as per finance order within a period of 15 days of issue of order and deposit security equal to 5 % of the value of the stores for which tenders are accepted within 15 days from the date of dispatch on which the acceptance of the tender is communicated to him and as per finance order.
- ii. No interest will be paid by the department on the security money.
- iii. The Earnest Money deposited at the time of tender will be adjusted towards security amount. The security money amount shall in no case be less than the Earnest Money.
- iv. Performance security shall be furnished in any one of the following forms-
- a. Bank Draft or Banker's Cheque or Bank Guarantee of a scheduled bank.
  - b. National Savings Certificates and any other script/instrument under National Savings Schemes for promotion of small savings issued by a Post Office in Rajasthan, if the same can be pledged under the relevant rules. They shall be accepted at their surrender value at the time of bid and formally transferred in the name of procuring entity with the approval of Head Post Master.
  - c. Fixed Deposit Receipt (FDR) of a scheduled bank. It shall be in the name of procuring entity on account of bidder and discharged by the bidder in advance. The procuring entity shall ensure before accepting the Fixed Deposit Receipt that the bidder furnishes an undertaking from the bank to make payment/premature payment of the Fixed Deposit Receipt on demand to the procuring entity without requirement of consent of the bidder concerned. In the event of forfeiture of the performance security, the Fixed Deposit shall be forfeited along with interest earned on such Fixed Deposit.
  - d. Any other instrument as mentioned in Rajasthan Transparency in Public Procurement Rules 2013.
  - e. deposit through eGRAS.
- v. Performance security furnished in the form specified in clause (a) to (d) of sub-rule {27.1(iv)} shall remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the bidder, including warranty obligations and maintenance and defect liability period.

**27.2 FORFEITURE OF SECURITY DEPOSIT:** Security amount in full or part may be forfeited in the following cases :

- a. When any Terms and conditions of the contract is breached.
- b. When the Tenderers fails to make complete supply satisfactorily.
- c. Notice of reasonable time will be given in case of forfeiture of security deposit. The decision of the purchase officer in this regard shall be final.

**Signature of tenderer with seal**

## **28. INSURANCE**

- i. The goods will be delivered at the destination godown in perfect condition. The supplier, if he so desired may be insure the valuable goods against loss by theft destruction or damage by fire, flood under exposure to whether or otherwise viz. (war rebellion, riot etc.) The insurance charges will be borne by the supplier and state will not be required to pay such charges, if incurred. The supplier is required to get the goods insured till 30 days after delivery.
- ii. The articles may also be got insured at the cost of the purchaser if so desired by the purchaser. In such cases, the insurance should invariably be with Life Insurance Corporation of India or its subsidiaries or as per rules.

## **29. PAYMENTS :**

- i. Advance payment will not be made.
  - ii. Unless otherwise agreed between the parties, payment for the delivery of the stores will be made on submission of bill in the proper form by the tenderer to the purchase officer in accordance with G.F. & A.R. all remittance charges will be borne by the tenderer.
- 30.1 The time specified for delivery in the Tender form shall be deemed to be the essence of the contract. The successful tenderer shall arrange supplies within the period on receipt of the firm order from the purchase office.
- 30.2
- |                                                                                  |              |
|----------------------------------------------------------------------------------|--------------|
| a. Delay up to the one fourth period of the prescribed delivery period.          | <b>2.5 %</b> |
| b. Delay exceeding one fourth but not exceeding half of the prescribed period.   | <b>5.0 %</b> |
| c. Delay exceeding half but not exceeding three fourth of the prescribed period. | <b>7.5 %</b> |
| d. Delay exceeding three fourth of the prescribed period.                        | <b>10 %</b>  |
- 30.3 Fraction of a day reckoning period of delay in supplies shall be eliminated if it is less than half a day.
- 30.4 The maximum amount of liquidated damages shall be 10%.
- 30.5 If the supplier requires an extension of time in completion of contractual supply on account of occurrence of any hindrance, he shall apply in writing to the authority, which has placed the work-order for the same immediately on occurrence of the hindrance but not after the stipulated date of completion of supply.
- 30.6 Delivery period may be extended with or without liquidated damages if the delay in the supply of goods is on account of hindrances beyond the control of the tenderer.

**Signature of tenderer with seal**

**31. RECOVERIES :**

Recoveries of liquidated damages short supply breakage, rejected articles shall ordinary be made from bills. Amount may also be withheld to the extent of short supply breakages, rejected articles and in case of failure in satisfactory replacement by the supplier along with amount of liquidated damages shall be recovered from his dues and the security deposit available with the department. In case recovery is not possible recourse will be taken under Rajasthan PDR Act. or any other law in force.

- 32. Tenderers must make their own arrangement to obtain import license if necessary.
- 33. If a tenderer imposes conditions which are in addition to or in conflict with the conditions mentioned in his tender is liable to summary rejection. In any case none of such conditions will be deemed to have been accepted unless specifically mentioned in the letter of acceptance of tender issued by the purchase officer.
- 34. The purchase committee/ procurement entity reserves the right to accept any tender not necessarily the lowest, reject any tender without assigning any reasons.
- 35. If any dispute arise out of the contract with regard to the interpretation, meaning and breach of the term of the contract, the matter shall be referred to by the parties to the Head of the Department who will appoint his senior most deputy as the sole arbitrator of the dispute who will not be related to this contract and whose decision shall be final.
- 36. All legal proceedings, if necessary arise to the institute may by any of the parties (Government or contractor) shall have to be lodged in courts situated in Jodhpur, Rajasthan and not elsewhere.

**DIRECTOR (EDUCATION)**

TECHNICAL EDUCATION RAJASTHAN  
JODHPUR

I/We have carefully read and understood above terms and conditions (from 1 to 36) of the tender and abide by them.

I/We have also certify that all the information and catalogue etc. of the tendered item has been enclosed and no information has been held back by us.

**SIGNATURE OF THE TENDERER**  
With seal and designation

**COMPLIANCE WITH THE CODE OF INTEGRITY AND NO CONFLICT OF INTEREST**

Any person participating in a procurement process shall –

- a) not offer any bribe reward or gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process.
- b) not misrepresent or omit that mislead or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation.
- c) not indulge in any collusion, Bid rigging or anti-competitive behavior to impair the transparency, fairness and progress of the procurement process.
- d) not misuse any information shared between the procuring entity and the Bidders with an intent to gain unfair advantage in the Procurement process.
- e) not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the Procurement process.
- f) not obstruct any investigation or audit of a Procurement process.
- g) disclose conflict of interest, if any and
- h) disclose any previous transgressions with any Entity in india or any other country during the last three years or any debarment by any other procuring entity.

**CONFLICT OF INTEREST :**

The Bidder participating in a bidding process must not have a conflict interest.

A conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliances with applicable laws and regulations.

A Bidder may be considered to be in conflict of interest with one or more parties in a bidding process if, including but limited to :

- a) have controlling partners/shareholders in common; or
- b) receive or have received any direct or indirect subsidy from any of them; or
- c) have the same legal representative for purposes of the Bid; or
- d) 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 decision of the Procuring Entity regarding the Bidding process; or
- e) the Bidder participates in more than one Bid in a bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the bidder is involved. however, this does not limit the inclusion of the same subcontractor, not otherwise participating as a Bidder, in more than one Bid; or
- f) the Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Goods, Works or Services that are the subject of the Bid; or
- g) Bidder or any of its affiliates has been hired (or to proposed to be hired) by the Procuring Entity as engineer-in charge/consultant for the contract

**Signature of tenderer with seal**

**DECLARATION BY THE BIDDER REGARDING QUALIFICATIONS**

In relation to my/our Bid submitted to ..... for procurement of ..... in response to their notice inviting Bid No. .... Dated ..... I/We hereby declare under Section 7 of Rajasthan Transparency in Public Procurement Act, 2012, that;

01. I/we possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;
02. I/we have fulfilled my/our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the Bidding Documents;
03. I/we are not insolvent, in receivership, bankrupt or being wound up, not have my/our affairs administered by a court or a judicial officer, not have my/our business activities suspended and not the subject of legal proceedings for any of the foregoing reasons;
04. I/we do not have, and our directors and officers not have, been convicted of any criminal offence related to my/our professional conduct or the making of false statements or misrepresentations as to my/our qualifications to entire to a procurement contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;
05. I/we do not have conflict of interest as specified in the Act, Rules and the Bidding Document, which materially affects fair competition;

Date :

**Signature of Bidder with seal**

Place :

Name :

Designation :

Address :

Aadhar No:-

e-mail Address:-

**GRIEVANCE REDRESSAL DURING PROCUREMENT PROCESS**

The Designation and address of the First Appellate Authority is **Director (Education), Directorate of Technical Education Rajasthan, Jodhpur.**

The Designation and address of the Second Appellate Authority is **Secretary, Technical Education Rajasthan, Jaipur.**

**01. Filing an appeal**

If a Bidder or prospective bidder is aggrieved that any decision, action or omission of the Procuring Entity is in contravention to the provision to the provision of the Act or the Rules or the Guidelines issued there under, he may file an appeal to first Appellate Authority, as specified in the Bidding Document within a period of ten days from the date of such decision or action, omission, as the case may be, clearly giving the specific ground or grounds on which he feels aggrieved.

Provided that after the declaration of a Bidder as successful the appeal may be filed only by a Bidder who has participated in procurement proceedings.

Provided further that in case a procuring Entity evaluates the Technical Bids before the opening of the Financial Bids, an appeal related to the matter of Financial Bids may be filled only by a Bidder whose Technical Bid is found to be acceptable.

02. The officer to whom an appeal is filled under para (1) shall deal with the appeal as expeditiously as possible and shall Endeavour to dispose it of within thirty days from the date of the appeal.

03. If the officer designation under para (1) fails to dispose the appeal filed within the period specified in para (2), or if the Bidder or prospective bidder or the Procuring Entity is aggrieved by the order passed by the First Appellate Authority, the Bidder or prospective bidder or the Procuring Entity, as the case may be, may file a second appeal to Second Appellate Authority specified in the Bidding Document in this behalf within fifteen days from the expiry of the period specified in para (2) or of the date of receipt of the order passed by the First Appellate Authority, as the case may be.

**04. Appeal not to lie in certain cases**

No appeal shall lie against any decision of the Procuring Entity relating to the following matters, namely :

- a) determination of need of procurement;
- b) provisions limiting participation of Bidders in the Bid process;
- c) the decision of whether or not to enter into negotiation;
- d) cancellation of a procurement process;
- e) applicability of the provisions of confidentiality.

**05. Form of Appeal**

- a) An appeal under para (1) or (3) above shall be in the annexed Form along with as many copies as there are respondents in the appeal.

**Signature of tenderer with seal**

- b) Every appeal shall be accompanied by an order appealed against, if any, affidavit verifying the facts stated in the appeal and proof of payment of fee.
- c) Every appeal may be presented to First Appellate Authority or Second Appellate Authority, as the case may be, in person or through registered post or authorized representative.

**06. Fee of filing appeal**

- a) Fee for first appeal shall be rupees two thousand five hundred and second appeal shall be rupees ten thousand, which shall be non-refundable.
- b) The fee shall be paid in the form of bank demand draft or banker's cheque of a Scheduled Bank in India payable in the name of Appellate Authority concerned.

**07. Procedure for disposal of appeal**

- a) The first Appellate Authority or Second Appellate Authority, as the case may be, upon filing of appeal, Shall issue notice accompanied by copy of appeal, affidavit and documents, if any, to the respondents and fix date of hearing.
- b) On the date fixed for hearing, the First Appellate Authority or Second Appellate Authority, as the case may be shall,-
  - (i) here all the parties to appeal present before him; and
  - (ii) peruse or inspect documents, relevant records or copies thereof relating to the matter.
- c) After hearing the parties, perusal or inspection of documents and relevant records or copies thereof relating to the matter, the Appellate Authority concerned shall pass an order in writing and provide the copy of order to the parties to appeal free of cost.
- d) The order passed under sub-clause (c) above shall also be placed on the State Public Procurement Portal.

**Signature of tenderer with seal**

**MEMORANDUM OF APPEAL UNDER THE RAJASTHAN TRANSPARENCY IN  
PUBLIC PROCUREMENT ACT, 2012**

Appeal No. .... of .....

Before the .....(First/Second Appellate Authority)

01. Particulars of appellant :

(i) Name of Appellant :

(ii) Official address, if any :

(iii) Residential address :

02. Name and address of the respondent(s) :

(i)

(ii)

(iii)

03. Number and date of the order appealed against and name and designation of the officer/authority who passed the order (enclosed copy), or a statement of a decision, action or omission of the Procuring Entity in contravention to the provisions of the act by which the appellant is aggrieved :

04. If the Appellant proposes to be represented by a representatives, the name and postal address of the representative :

05. Number of affidavits and documents enclosed with the appeal :

06. Ground of appeal :

.....  
.....  
.....

(supported by an affidavit)

07. Prayer

:.....  
.....  
.....

Place : .....

Date : .....

**Appellant's Signature**

**ADDITIONAL CONDITIONS OF CONTRACT**

**01. Correction of arithmetical errors :**

Provided that a Financial Bid is substantially responsive, the Procuring Entity will correct arithmetical errors during evaluation of Financial Bids on the following basis :

- (i) if there is 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, unless in the opinion of the Procuring Entity there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected.
- (ii) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (iii) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.

If the Bidder that submitted the lowest evaluated Bids does not accept the correction of errors, its Bid shall be disqualified and its Bid Security shall be forfeited or its Bid Securing Declaration shall be executed.

**02. Procuring Entity's Right to Vary Quantities :**

- (i) At the time of award of contract, the quantity of goods, works or services originally specified in the Bidding Document may be increased or decreased by a specified percentage, but such increase or decrease shall not exceed twenty percent, of the quantity specified in the Bidding Document. it shall be without any change in the unit prices or other terms and conditions of contract.
- (ii) If the Procuring Entity does not procure any subject matter of procurement or procures less than the quantity specified in the Bidding Document due to change in circumstances, the Bidder shall not be entitled for any claim or compensation except otherwise provided in the Conditions of Contract.
- (iii) In case of procurement of Goods or services, additional quantity may be procured by placing a repeat order on the rates and conditions of the original order. However, the additional quantity shall not be more than 50% of the value of Goods of the original contract and shall be within one month from the date of expiry of last supply, if the suppliers fails to do so, the Procuring Entity shall be free to arrange for the balance supply by limited Bidding or otherwise and the extra cost incurred shall be recovered from the Suppliers.

**03. Dividing quantities among more than one Bidder at the time of award (In case of Procurement of Goods) :**

As a general rule all the quantities of the subject matter of procurement shall be procured from the Bidder, whose Bid is accepted. However, when it is considered that the quantity of the subject matter of procurement to be procured is very large and it may not be in the capacity of the Bidder, whose Bid is accepted, to deliver the entire quantity or when it is considered that the subject matter of procurement to be procured is of critical and vital nature, in such cases, the quantity may be divided between the Bidder, whose Bid is accepted and the second lowest Bidder or even more Bidders in that order, in a fair, transparent and equitable manner at the rates of the Bidder, whose Bid is accepted.

**Signature of tenderer with seal**

**"DECLARATION BY THE TENDERERS" (S.R. 11)**

I / We declare that I am ..... / We are bonafide  
/Manufacturer/Whole Sellers/ Sole Distributors/ Authorized Dealer/ Dealers/ Sole Selling/  
Marketing Agent in the Good/Stores/Equipments/Furniture's for which I/We have Tendered.  
**(STRIKE OFF WHICHEVER IS NOT APPLICABLE)**

If, this Declaration is found to be incorrect then without prejudice to any other action that  
may be taken, my/our security may be forfeited in full and the Tender if any to the extent accepted  
may be cancelled.

**SIGNATURE OF THE TENDERER**

With seal and designation

**"G.S.T. DECLARATION"**

I, Certify that the goods on which **G.S.T.** has been charged have not been exempted under the **G.S.T. Act**, or the Rules made there under and the amount charged on account of **G.S.T.** is not more than what is payable under the relevant provisions of the **G.S.T. Act** or the Rules made there under.

Certify that                we                M/s                .....  
..... are registered as Manufacturer/Dealer in the  
..... (State or Union Territory) under **G.S.T.** Registration No.  
.....

**SIGNATURE OF THE TENDERER**  
With seal and designation

**PRICE CHARGING CERTIFICATE**

I/We hereby certify that the rate offered in Financial bid are reasonable and justified and we are not marketing lower rates to other department on condition of the tender and contract.

**SIGNATURE OF THE BIDDER  
WITH SEAL AND DESIGNATION**

**FORMAT OF AFFIDAVIT**

(On non-judicial Stamp Paper of Rs- 50/-)

I ..... S/o .....  
Aged ..... Years ..... Residing at .....  
Proprietor/Partner/Director of M/s ..... do  
hereby solemnly affirm and declare that :

- a) My/Our above noted enterprise M/s ..... has  
been issued acknowledgement of Entrepreneurial memorandum Part-II by the District  
Industries Centre ..... The acknowledgement No is ..... Dated .....  
and has been issued for manufacturer of following items :
- (i)
  - (ii)
  - (iii)
  - (iv)
  - (v)
- b) My/Our above noted acknowledgement of Entrepreneurial memorandum Part-II has not  
been cancelled or withdrawn by the Industries Department and that the enterprise is  
regularly manufacturing the above items.
- c) My/Our enterprise is having all the requisite plant and machinery and is fully equipped to  
manufacture the above noted items.

Place :

**Signature of Proprietor/ Director**  
Authorised Signatory with Rubber Stamp & Date

(ATTESTED BY FIRST CLASS MAGISTRATE OR NOTARY PUBLIC)

**REAL TIME GROSS SETTLEMENT (RTGS) / NATIONAL ELECTRONIC  
FUND TRANSFER (NEFT)**

From: M/s. ....  
.....  
.....

To,  
**The Director (Education),**  
Directorate of Technical Education Rajasthan,  
Jodhpur.

**Sub:- RTGS / NEFT Payments.**

We refer to remittance of our payments using RBI's RTGS/NEFT. Our payments may be made through the above system to our under noted account at our cost :-

Name of Firm	:	
Full Address	:	
Mobile Number	:	
mail ID for Payment Information	:	
Email Address	:	
PAN Number	:	
Bankers Name	:	
Branch Name	:	
9 Digit Code of Bank (Appearing on the MICR Cheque issued by the Bank	:	
Account Type with Code	:	
Account Number (as appearing on Cheque Book)	:	
IFSC Code for RTGS	:	

**Signature of Bidder**  
with Stamp & Address

**FORMAT OF AFFIDAVIT**

(On Non-judicial Stamp Paper of Rs. 100/-)

I.....S/o.....Aged.....  
years, residing at ..... Proprietors/Partner/Director  
of M/s.....do hereby  
solemnly declare that:

- a. all items tendered by me/us in NIT No. 1/2024-25 as per Column issued by Director(Edu.), Directorate of Technical Education, Jodhpur are included in Entrepreneurial Memorandum part-II/Udhyog Aadhar issued to our firm by the Industries Department of Rajasthan.
- b. the rebate in tender fee & earnest money is applicable to our firm as per rules made for SSI **MSME** (उद्योग आधार) units. (as per Government of Rajasthan Order).
- c. if any discrepancy is found later our tender will be liable for rejection including forfeiture of earnest money/security money deposit along with any legal action as per the tender terms & conditions.

Place :

**Signature of Proprietor/ Director**  
Authorized Signatory with Rubber Stamp & Date

**Authorisation certificate to be submitted by Principal manufacturer**

It is certified that M/s..... (Name & address of tenderer) is our authorized Distributer/ Dealer. They are authorized to submit tender for..... (Name of item(s) as per Schedule-‘H’ for which the authorization is being given) to Director (Education), Directorate of Technical Education, Jodhpur (Rajasthan) against their Tender Notice No 01/2024-25 Dated- 27.08.2024 on behalf of us.

The equipment/ Instrument/Machine is guaranteed for the period as mentioned in tender and during the guarantee period the authorized Distributor/Dealer shall replace the parts or rectify any manufacturing defect found in the machine. They are also responsible for after Sale-service during the life time of equipment/instrument/machine. In case of change of authorized Distributor/ Dealer the new authorized Distributor/Dealer will be responsible for guarantee and after sale-service. In case of failure we will be responsible for providing after sale service.

**Note:-** This authorization certificate should be typed & signed with Contract person Telephone Number, Mobile Number, Email Address by the principal manufacturer on his original letter pad and scanned copy of which must be up loaded with tender otherwise concerned item of the tender will not be considered for technical evaluation.

**Signature of Principal Manufacturer  
with rubber stamp**

Name :

Designation :

Address :

Aadhar No:-

e-mail Address:-

**ANNEXURE "L-1" MANUFACTURER'S AUTHORIZATION FORM (MAF)**

**To,  
{Tendering Authority}**

.....

.....

**I/We {Name/Designation}..... hereby declare/ certify that  
{Name/Designation}..... is hereby authorized to sign relevant  
documents on behalf of the company / firm in dealing with Tender:**

**He/She is also authorized to attend meetings & submit technical & commercial information/  
clarifications as may be required by you in the course of processing the Bid No 01/2024-25  
and Items No ----- For the purpose of validation, his/her verified signatures are as  
under.**

**Yours faithfully**

**For and on behalf of M/s (Name of the OEM)**

**(Authorized Signatory)**

**Name, Designation & Contact No. Aadhar No.**

**Address: -----with seal**

**ANNEXURE "L-2" MANUFACTURER'S AUTHORIZATION FORM (MAF)**

**To,**

**Directorate of Technical Education**

**Jodhpur**

**Subject : Issue of Manufacturer's Authorization Form (MAF)**

**Reference No.:**

**Sir,**

- a. We {name and address of the OEM} who are original equipment manufactrurers (OEMs) do hereby authorize {M/s .....} who is our Authorized for Name of item..... to bid, negotiate and conclude the contract with you against the aforementioned tender reference for the following Hardware/items(s) manufactured by us for Bid No. 01/2024-25 :**

<b>Item No.</b>	<b>Equipments</b>	<b>Qty.</b>	<b>Unit</b>	<b>Period of Comprehensive OEM Warranty (in yrs.)</b>	<b>Period of end of sale (in months)</b>	<b>Period of end of service (in yrs.)</b>	<b>Period of back to back support (in yrs.)</b>

- b. We undertake to provide Comprehensive OEM warranty for the offered items for the period mentioned above.**
- c. We undertake that the item/items being quoted is/have not been and is/are not likely to be declared end of sale for period mentioned above from the date of bid submission.**
- d. We undertake that the item/items being quoted is/have not been and is/are not likely to be declared end of service for period mentioned above from the date of bid submission.**
- e. We undertake that items offered by the bidder for back to back support, updates and patches for period mentioned above .**

**Yours faithfully**

**For and on behalf of M/s (Name of the OEM)**

**(Authorized Signatory)**

**Name, Designation & Contact No. Aadhar No.**

**Address: -----with seal**

**ANNEXURE – M : PROPOSAL FORMAT FOR ORGANIZATION**

**Selection A: Organization Profile**

**i. Name of the Organization :**

.....

**ii. Registered Address :**

.....

(Necessary fill Tel., Fax.,

.....

Email, Website, etc.

.....

**iii. Legal Status**

S.no	Particulars	Registration no.	Date
1	Public Charitable Trust Act		
2	Society under Societies Registration Act		
3	Non-profit company under Indian Companies Act 1956		
4	Registration under Foreign Contribution (Regulation) Act, 1976		
5	Income tax registration:		
	Under Section 12 A		
	Under Section 80 G		
	Under Section 35 CCA		
	Any other Section/Registration		

**iv. Bank Details:**

Bank Name	Account No.	Date of Opening Account

**v. Details of the contract person**

Name : .....

Designation : .....

Contact No. : .....

E-mail : .....

**vi. Members Associated with the Organization**

S.no.	Name	Nationality	Occupation/ qualification	Positions held in the organization	Relationship with any other officer bearers (if any)	Address

**Selection B: Operational Background**

a. Project related to supply of these type of terms:

S.no	Name of the programme	Period		No of outreach session per month	Details of the Programme	Total Budget	Source of fund
		From	To				

b. Staff Details (Kindly provide the details of 5 key positions in the organization)

Name of Staff	Position	Qualification	Working since

c. Any previous association/working experience with Govt. Sector ? If yes, please provide the details:

d. Volume of Year wise Grant Received during the last 3 years (in different projects):

e. Name of the Donors/Funders during the last 3 Years:

Section C: Basic Documents required to be submitted along with the proposal for Evaluation

- Copy of Trust Deed if registered under Trust Act.
- Copy of Memorandum and Rules if registered under Society Registration Act.
- Annual Report of last one year
- Audited Accounts of last 3 years
- Organizational Chart
- Legal Status of the society-copy of Registration Certificate
- Copy of PAN/TAN Number
- Copy of Latest Income Tax Return Filed
- Any other document relevant to the proposal

Thanking you,

Name of the Bidder:-

Authorized Signatory:-

Seal of the Organization:-

Date:

Place:

**ANNEXURE-N : SELF-DECLARATION NO BLACKLISTING**

{to be filled by the bidder on Rs. 100/- Non Judicial Stamp}

To,

{Tendering Authority},

\_\_\_\_\_,  
\_\_\_\_\_

In response to the Tender/ NIT : \_\_\_\_\_ for {Project Title}, as an Owner/  
Partner/ Director of \_\_\_\_\_, I/We hereby declare that  
presently our Company/ firm \_\_\_\_\_, at the time of bidding, is having  
unblemished record and is not declared ineligible for corrupt & fraudulent practices either  
indefinitely or for a particular period of to me by any State/ Central government/ PSU/UT.

If this declaration is found to be incorrect then without prejudice to any other action that may be  
taken, my/ our security may be forfeited in full and out bid, to the extent accepted, may be  
cancelled.

Thanking you,

Name of the Bidder:-

Authorized Signatory:-

Seal of the Organization:-

Date:

Place:

**ANNEXURE- O : CERTIFICATE OF CONFORMITY/ NO DEVIATION**

{to be filled by the bidder on letterhead }

To,  
{Tendering Authority},

\_\_\_\_\_ ,

\_\_\_\_\_ ,

**CERTIFICATE**

This is to certify that, the specifications of Hardware & Software which I/We have mentioned in the Technical bid, and which I/We shall supply if I/We am/are awarded with the work, are in conformity with the minimum specifications of the tender/ bidding document and that there are no deviations of any kind from the requirement specifications.

Also, I/We have thoroughly read the tender/bidding document and by signing this certificate, we hereby submit our token of acceptance to all the tender terms & conditions without deviations.

I/We are also certify that the price I/We have quoted is inclusive of all the cost factors involved in the end-to-end implementation and execution of the project, to meet the desired Standards set out in the Tender/bidding Documents with contract person Telephone Number, Mobile Number, Email Address

Thanking You,

Name of the Bidder: -

Authorized Signatory: -

Seal of the Organization: -

with contact person Telephone Number, Mobile Number,  
Email Address

Date:-

Place:-

**ANNEXURE- P : UNDERTAKING ON AUTHENTICITY OF ALL ITEMS and ALLIED EQUIPMENTS**  
{to be filled by the bidder On letterhead }

To,  
{Tendering Authority},  
\_\_\_\_\_

Reference:

This has reference to the items being supplied/ quoted to you vide our bid ref. no. \_\_\_\_\_  
dated \_\_\_\_\_

We hereby undertake that all the components/ parts/ assembly/ software used in the equipment shall be genuine, original and new components/ parts/ assembly/ software from respective OEMs of the products and that no refurbished/ duplicate/ second hand components/ parts/ software are being used or shall be used. In respect of licensed operating system, we undertake that the same shall be supplied along with the authorized license certificate with our name/ logo. Also that it shall be sourced from the authorized source for use in India.

In case, we are found not complying with above at the time of delivery or during installation, for the equipment already billed, we agree to take back the equipment already supplied at our cost and return any amount paid to us by you in this regard and that you will have the right to forfeit out EMD/ SD/ PSD/ for this bid or debar/ black list us or take suitable action against us.

Authorized Signatory:-

Name:

Designation:

**Declaration for correct information**

{ To be filled by the Bidder on Rs.- 1000/- Non Judicial Stamp Paper}

To

The Director  
Directorate of Technical Education  
Jodhpur (Rajasthan).

Subject:- Affidavit of correct information  
Ref. Bid No.-----

Dear Sir,

With reference to above mention subject. We hereby declare that, -----  
----- (Name  
of Firm) our company has furnished the correct information in the tender and we solely  
responsible for furnishing wrong/false information in the bid.

Thanking you, we remain.

Authorized Signatory

Name :

Designation :

**ANNEXURE- R :FINANCIAL BID UNDERTAKING**

{on bidder's letterhead in technical bid}

To,  
**Director (Education),**  
**Directorate of Technical Education Rajasthan,**  
**Jodhpur- 342032**

Reference: -

Dear sir,

We, the undersigned bidder, Having read & examined in detail, the Bidding Document, the receipt of which is hereby duly acknowledged, I/we, the undersigned, offer to supply/work as mentioned in the Scope of the work, Bill of Material, Technical specifications, specifications, Service Level Standards & in conformity with the said bidding document for the same.

I/We undertake that the prices are in conformity with the specifications prescribed. The quote/price are inclusive of all cost likely to be incurred for executing this work. The prices are quoted as required in the price-bid given in

I/We undertake, if our bid is accepted, to deliver the goods. In accordance with the delivery schedule specified in the schedule of Requirements.

I/We hereby declare that in case the contract is awarded to us, we shall submit the contract is awarded to us, we shall submit the contract performance guarantee as prescribed in the bidding document.

I/We agree to abide by this bid for a period equal to bid validity and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us.

I/We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief.

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

We agree to all the terms & conditions as mentioned in the bidding document and submit that we have not submitted any deviations in this regard.

Date:

Authorized Signatory

Name:

Designation:

## SELF-DECLARATIONAnnexure S

(To be filled by the bidder)

To,  
(Procuring entity)

\_\_\_\_\_

In response to the BID Ref. No \_\_\_\_\_ Dated \_\_\_\_\_ for  
(Project Title \_\_\_\_\_) as an Owner/ Partner/ Director/ Authorized Signatory of  
\_\_\_\_\_. I/ We hereby declare that presently our company/  
firm \_\_\_\_\_ at the time of bidding :-

- (i) possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;
- (ii) have fulfilled my our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the Bidding Document;
- (iii) is having unblemished record and is not declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State Central government/ PSU UT.
- (iv) does not have any previous transgressions with any entity in India or any other country during the last three years
- (v) does not have any debarment by any other procuring entity
- (vi) is not insolvent in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and is not the subject of legal proceedings for any of the foregoing reasons,
- (vii) does not have, and our directors and officers not have been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings
- (viii) does not have a conflict of interest as mentioned in the bidding document which materially affects the fair competition.
- (ix) will comply with the code of integrity as specified in the bidding document, If this declaration is found to be incorrect then without prejudice to any other action that may be taken as per the provisions of the applicable Act and Rules thereto prescribed by GoR, my our security may be forfeited in full and our bid, to the extent accepted, may be cancelled

Thanking you,

Name of the Bidder:

Authorized Signatory:

Seal of the Organization:

Date:

Place:

2152

## Annexure "H"

e-Tender No. 01 Part 1 (2024-2025) MECHANICAL LAB RELATED ITEMS

**TECHNICAL SPECIFICATION**

1. The scanned copy of this annexure "H" (original downloaded) duly completed and seal signed by the bidder must be uploaded otherwise bid should not be considered. Any supplementary information may be uploaded separately.
2. Scanned Copies Items wise Original Literature/Leaflets/Catalogue correct Image as per Tender Specification enclosed, Authorization Certificate of manufacturer prescribed format (Annexure-L) etc. must be enclosed in support of your Make and Specifications otherwise concerned items will not be considered for Technical Evaluation.
3. The delivery period up to 30 days.
4. The Material will be Supplied F.O.R. at Jodhpur or Principal Government Polytechnic College, as per order List.
5. Index Page No. 1 & 2 all Document of S. No. 1 to 34 (if applicable) and other required document must be enclosed otherwise concerned Tender will not be considered for Technical Evaluation.
6. All the material supplied should be new and no item can be supplied which is refurbished.
7. The bidder should provide the instruction manual for the items for the bid is being offered and also provide training as and when required by the department.

S. No.	Name of Item with Specifications	Bhilwara	Karoli	Baran	Tonk	Hanumangarh	Nagour	Dungerpur	Dausa	Total	Specify variations in Specifications in any, otherwise write "No variation"/ as per Specification & write Make & Model
1	<b><u>FRANCIS TURBINE TEST RIG</u></b> <ul style="list-style-type: none"> <li>This is a reaction turbine and this test rig shows the construction and working of Francis turbine. The system is closed circuit.</li> </ul> <b>Specifications:</b> Sump Tank: M.O.C : MS Inner Side Coating : Fiber glass lined Capacity : 300 Liter. Tank to store sufficient water for independent circulation through the unit experimentation and arrange within the floor space of main unit. Turbine: Type : Francis Turbine	1	1	0	1	1	1	1	1	7	

	<p>Size : 150 mm</p> <p>Power develop capacity : 1 KW at 1250 RPM with a flow of about 1400 LPM at 20 meters supply head.</p> <p>Centrifugal Pump:</p> <p>Type : Monoblock</p> <p>Make : ISI Standard</p> <p>Power : 5 HP,</p> <p>Supply Voltage : 3 Phases, 440V</p> <p>Pump Size : Suction size 65-80 mm &amp; Delivery size 65-80mm</p> <p>Pump Discharge : 1000 - 1500 LPM</p> <p>Delivery Head : 20 meters.</p> <p>RPM : 2800 - 3000 RPM</p> <ul style="list-style-type: none"> <li>• Rope Brake Dynamometer is used to measure the output. Spring balance 25 kg &amp; 10 Kg (Any Standard Make) and dead weights are used to measure the load. Runner Diameter 220mm</li> <li>• Orifice meter of 42mm is used to measure the flow rate of water through pressure gauge (4 kg/cm<sup>2</sup>) which measure the pressure heads.</li> <li>• Discharge control valve, by-pass valve of 2-1/2" (Any Standard Make) used to control the flow rate of water.</li> <li>• Rigid MS frame work compactly fitted with all the above items as a self-sufficient package unit suitable for operation without any foundation.</li> <li>• Control panel with Switch, indicator and starter fitted on it.</li> <li>• Transparent window made of thick perspex tube to be provided between casing and draft tube to view flow at exit.</li> </ul>										
2	<p><b><u>SHELL AND TUBE HEAT EXCHANGER</u></b></p> <p><b><u>TRAINER WITH COMPUTER CONTROL</u></b></p> <p><b>Technical Specification:</b></p>	1	0	0	1	1	0	1	1	5	

102

<p>The setup should consist of 1-1 Shell and Tube Heat Exchanger with a cold-water tank fitted with Pump, Rota meter and a hot water tank with thyristorized heater to heat the water. The temperature at the shell side exit point of heat exchanger should be sensed by the RTD Pt-100/Pt-1000. The leaving temperature of hot water and entry and exit temperatures of Cold water should also measure with the help of Thermocouple.</p> <p><b>PID Controller:</b>          Input : Universal          Output : 4 – 20 mA          Communication: RS 485 ASCII/ Modbus communication          Features : Auto tuning, Auto/ Manual Mode Facility          Control Method : Heating Mode or Cooling Mode          Range : Field Settable          Display : 4-digit Dual Digital Display for SV and PV          Front Keypad : Membrane Type          Power Supply : 230 V AC, 5 amp.          Bar graph : To indicate output %          Relay Output : Minimum 1 nos.          Panel Cutout : 92 (H) x 92 (W) mm          Operating Temperature : 0°C to 55°C</p> <p><b>Control Valve:</b>          Body Type : Globe Valve          Nominal Size : 15 mm,          Stem Diameter : 10 mm          Line Connection : Flanged Type          Packing : PTFE          Characteristics : Equal %          Service : Water</p> <p><b>Actuator:</b>          Type : Diaphragm Type          Fail Safe Action : extends          Bench Range : 0.2-1.0 bar          Opening Action : Air to Open</p> <p><b>I/P Converter:</b>          Input : 4 - 20 mA,          Output : 3 -15 psig,          Air Supply : 1.4 bar,</p>													
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

[illegible]

MOC	: SS body,
Connection Size	: 1"
Nos.	: 2
<b>Rota meter:</b>	
Service	: Water,
Range	: Suitable,
Body M.O.C	: SS
Float	: SS
Connection	: ½",
Metering Tube	: Borosilicate Glass,
Valve	: Needle type, integrated
Mounting	: Vertical
<b>Air Regulator:</b>	
Service	: Air
Max. Input Pressure	: 10 kg/ cm <sup>2</sup> ,
Hose Connection : ¼",	
<b>Current Meter:</b>	
1. To indicate & measure Temperature Transmitter Output (4 - 20 mA),	
2. To indicate & measure I/P Converter Input (4 - 20 mA),	
<b>Pressure Gauge:</b>	
To indicate & measure supply air pressure to I/P Converter	
<b>Thyristor Drive:</b>	
Rating	: 2000 W,
Operating Voltage	: 230 V AC, /50 HZ
Input Signal	: 4-20 mA,
Output	: To Heater of Hot water tank,
<b>Heater Controller:</b>	
Type	: PID,
Input	: RTD/ TC
Output	: 4 - 20 mA,
Display	: Digital,
Power Supply	: 230 V AC, 5 Amp.
<b>Temperature Scanner:</b>	
Input	: RTD/ Thermocouple
No. of Channel	: 8 channels,
Range	: 0 to 100 °C
Display	: 7 Segment 4-digit LED display
Power	: 220 V AC, 50 Hz

2152

<p><b>Converter:</b> Suitable Converter should be provided to connect instrument with computer</p> <p><b>Control trainer software:</b> The software package offered contains necessary hardware and software required to interface the setup to a personal computer thus creating full software controlled experimental and instructional environment. The package should enable students to investigate and understand the principles of process control in a laboratory environment with the minimum technical support. Windows compatible software package has been developed using SCADA software. This provides direct control of the processes (control trainer) used, including open and closed loop control, plus multi loop configurations associated with remote set point control (as appropriate). Comprehensive laboratory sheets for all the experiments are included in the manual with setting up information, background theory, operational procedures and all other relevant information.</p> <p><b>Industrial SCADA software:</b></p> <ul style="list-style-type: none"> <li>• User friendly Windows interface.</li> <li>• Two-way communication for control and data acquisition.</li> <li>• Auto-configuration with multi-port selection option.</li> </ul>														
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

152

	<ul style="list-style-type: none"> <li>• Manual (Open Loop) and automatic control (Closed Loop).</li> <li>• Selectable P, P+I, P+D and P+I+D mode.</li> <li>• Bump less transfer between open and closed loop operation.</li> <li>• Live mimic diagrams of the process including set point, process variable and output.</li> <li>• Dynamic multi-color data display capability (tabular, chart or graphical form).</li> <li>• Powerful graphics and trend chart capabilities with customization.</li> </ul> <p><b>Computer &amp; peripherals:</b></p> <ul style="list-style-type: none"> <li>• Intel Core i3 or higher or Latest VERSION</li> <li>• MINIMUM 4 GB RAM</li> <li>• MINIMUM 17" LED MONITOR</li> <li>• MINIMUM 500GB HARD DISK</li> <li>• KEYBOARD AND MOUSE SET</li> <li>• SPEAKER SET</li> </ul>										
3	<p><b><u>COMPUTERIZED CENTRIFUGAL PUMP TEST RIG</u></b></p> <p>Centrifugal pump test rig consists of sump tank, measuring tank, centrifugal pump, electric motor, flow meter, transmitters and control panel with following specifications.</p> <p><b>Technical Specifications:</b></p> <p><b>Pump:</b></p> <p>Type : Centrifugal Pump</p> <p>No. of Stages : One</p>	1	1	0	1	1	1	1	1	7	

[illegible]



152

	<p>computer thus creating full software controlled experimental and instructional Environment. The package should enable students to investigate and understand the principles of process in a laboratory environment with the minimum technical support. Latest Windows Interface. Two-way communication for control and data acquisition, Data display capability.</p> <p><b>Computer &amp; peripherals:</b></p> <ul style="list-style-type: none"> <li>• Intel Core i3 or higher or Latest VERSION</li> <li>• MINIMUM 4 GB RAM</li> <li>• MINIMUM 17" LED MONITOR</li> <li>• MINIMUM 500GB HARD DISK</li> <li>• KEYBOARD AND MOUSE SET</li> <li>• SPEAKER SET</li> </ul>										
4	<p><b><u>PNEUMATIC TRAINER KIT</u></b></p> <p>Technical Specification:</p> <p>The training system should be suitable for imparting training on basic and advanced pneumatic components and systems for enhancing the knowledge and skills of trainees in the relevant field.</p> <ul style="list-style-type: none"> <li>• The system should be suitable for trainees to have hands-on experience in pneumatic and electro-pneumatic circuits and wiring components to PLC and Relay module.</li> <li>• The system should also provide a simulation software package for the trainees to simulate</li> </ul>	1		0	0	0	1	1	1	4	

	<p>pneumatic and electro-pneumatic circuits for the quick learning of concepts.</p> <p>Description:</p> <ul style="list-style-type: none"> <li>Supply, installation, and commissioning of Pneumatic and electro-pneumatic, PLC and Relay based training system with workstation and components consisting of the following items:</li> </ul> <p>1. Workstation:</p> <p>To be used from both sides with high strength metallic (aluminium) profile legs with four heavy-duty lockable castor wheels, wooden work surface, one fixed pedestal drawer units having at least three drawers for the storage of components, each with handles and individual locks.</p> <p>Dimensions (Approx.)</p> <ul style="list-style-type: none"> <li>Work Table –Length 1200 mm X Width 900 mm X Height 900 mm including caster wheel</li> <li>Drawer Unit - 01 No. Suitable Size</li> </ul> <p>2. Profile plate:</p> <p>With grooves on both sides with overall dimensions of 1100mm x 700mm (approx.), made of anodized aluminium, for mounting with quick fix mechanism</p>														
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

123

	<p>of pneumatic/electro- pneumatic valves and components.</p> <p>3. Pneumatic Component set consisting of the following:</p> <ul style="list-style-type: none"> <li>• Compressed Air Service Unit (FRL) Complete - 01 Nos.</li> <li>• Manifold with 1 Input and 5 output connections with self-locking couplings -01 Nos.</li> <li>• Single Acting Cylinder, 20 mm bore x 50 mm stroke – 01 Nos.</li> <li>• Double Acting Cylinder Bore: 20 mm, Stroke: 100 mm– 01 Nos.</li> <li>• 3/2 Way Valve, Pushbutton actuated, spring return – 01 Nos.</li> <li>• 3/2-way valve, roller lever spring return– 01 Nos.</li> <li>• 3/2-way valve, pneumatically actuated, spring return– 01 Nos.</li> <li>• One Way Flow control valve, adjustable- 01 Nos.</li> <li>• Two Way Flow control valve, adjustable- 01 Nos.</li> <li>• 5/2 Way valve with detent switch – 01 Nos.</li> <li>• 5/2 Way Valve, pneumatically actuated, spring return – 01 Nos.</li> </ul>											
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--



253

	<p>switches (each 1 No + NC) and one illuminated maintained – contact switch (1 NO +1 NC), power supply rail. Contact load 2A – 04 Nos.</p> <ul style="list-style-type: none"> <li>• Relay unit, with 4 change – over contacts, suitable for 24 V DC, 5 A – 04 Nos.</li> <li>• PLC Controller with programming cable- 01 Nos.</li> <li>• Electrical Limit Switch with a changeover contact– 02 Nos.</li> <li>• Proximity Sensor– 02 Nos.</li> <li>• 3/2-way solenoid valve with LED, spring return, 24 V DC – 01 Nos.</li> <li>• 5/2-way single solenoid valve with manual override and LED, 24V DC – 01 Nos.</li> <li>• 5/2-way double solenoid valve with manual override and LED, 24 V DC – 01 Nos.</li> <li>• Set of laboratory cables (4 mm) with banana connections and safety plugs at both ends in red and blue colour in the following lengths and quantities: - 01 Set</li> </ul> <p>5. PC/Computer Workstation:</p> <ul style="list-style-type: none"> <li>• The kit should be supplied with an integrated PC/ computer workstation with following minimum</li> </ul>														
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

	<p>specifications: Intel i5 processor with 08 GB RAM, 256 GB SSD, 19- inch or better LED Monitor, keyboard and Mouse. – 01 Set.</p> <p>6. Pneumatic simulation Software: It Should be possible to easily reproduce any lab requirement or complete system to simulate, analyze and troubleshoot them before hand on experience. Should enable to design, pneumatic as well as pneumatic circuits, simulate /design of a complete pneumatic circuit. With pneumatic components in the library. Perpetual license. – 01 License</p> <p>With pneumatic components in the library.</p> <p>Following Library should content with simulation software</p> <p>Pneumatic and Proportional Pneumatic</p> <p>Electric Controls</p> <p>PLC Siemens</p> <p>Embedded view</p> <p>Sequence Diagram</p> <p>7. Cut Models of Pneumatic Components</p> <ul style="list-style-type: none"> <li>• Single Acting Cylinder, 20 mm bore x 50 mm stroke – 01 Nos.</li> <li>• Double Acting Cylinder Bore: 20 mm, Stroke: 100 mm– 01 Nos.</li> <li>• 3/2-way valve, roller lever spring return– 01 Nos.</li> </ul>													
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

152

	<ul style="list-style-type: none"><li>• 5/2 Way Valve, pneumatically actuated, spring return – 01 Nos.</li><li>• Shuttle Valve – 01 Nos.</li><li>• Two Pressure Valve – 01 Nos.</li><li>• 5/2-way double solenoid valve with manual override and LED, 24 V DC – 01 Nos.</li><li>• Pressure Gauge – 01 Nos.</li></ul> <p>8. The bidder must provide operations/ instructions manual with the product.</p> <p>9. Training is to be provided as and when needed during the warranty period.</p>										
5	<b><u>AIR COMPRESSOR FOR PNEUMATIC TRIANER</u></b> <ul style="list-style-type: none"><li>• Silent type,</li><li>• power supply: 230V, 50 Hz AC,</li><li>• power rating: 1HP (minimum),</li><li>• Pressure rating: 8 bar,</li><li>• Tank capacity: 40-50 liters</li><li>• Pressure regulator,</li><li>• Pressure gauge,</li><li>• Water separator,</li><li>• Power cable,</li><li>• Pressure switch</li><li>• Safety valve</li><li>• On/Off Valve</li><li>• Drain Valve</li></ul>	1	1	0	1	0	1	1	1	6	

	<ul style="list-style-type: none"> <li>Suction Filter</li> <li>Caster wheel</li> <li>Instruction Manual</li> </ul>										
6	<p><b><u>HYDRAULIC TRINAER KIT</u></b></p> <p><b>Technical Specification:</b></p> <p>The training system should be suitable for imparting training on basic and advanced hydraulic components and systems for enhancing the knowledge and skills of trainees in the relevant field.</p> <ul style="list-style-type: none"> <li>The system should be suitable for trainees to have hands-on experience in hydraulic and electro-hydraulic circuits and wiring components to PLC and Relay module.</li> <li>The system should also provide a simulation software package for the trainees to simulate hydraulic and electro- hydraulic circuits for the quick learning of concepts</li> </ul> <p><b>Description:</b></p> <ul style="list-style-type: none"> <li>Supply, installation, and commissioning of Hydraulic and Electro- Hydraulic, PLC and Relay based training system with workstation and components consisting of the following items:</li> </ul> <p><b>1. Workstation:</b></p> <p>To be used from both sides with high strength metallic (aluminium) profile legs with four heavy-duty lockable castor wheels, one fixed pedestal drawer</p>	1		0	0	0	1	1	1	4	

K12

	<p>units having at least three drawers for the storage of components, each with handles and individual locks.</p> <p><b>Dimensions (Approx.)</b></p> <ul style="list-style-type: none"> <li>• Work Table –Length 1200 mm X Width 900 mm X Height 900 mm including caster wheel</li> <li>• Drawer Unit - 01 No. Suitable Size</li> </ul> <p><b>2. Profile plate:</b></p> <p>With grooves on both sides with overall dimensions of 1100mm x 700mm (approx.), made of anodized aluminium, for mounting with quick fix mechanism of Hydraulic/electro- Hydraulic valves and components Using Allen key or knob.</p> <p><b>3. Hydraulic power pack:</b></p> <p>(1) external gear pump having a delivery rate of 2.5 lpm, (approx.) @ 1400 rpm operating pressure 60 bar, coupled to a single-phase AC motor (230 V AC) having start capacitor and ON/OFF switch and overload protection, (2) pressure relief valve adjustable from 0 – 60 bar, (3) oil reservoir, <math>\geq 15</math> litres capacity having sight glass, drain screw, filter, and P and T ports.</p> <p><b>4. Hydraulic Component set consisting of the following:</b></p>													
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

	<ul style="list-style-type: none"> <li>• Pressure relief valve, pilot-operated – 01 Nos.</li> <li>• Drip tray of suitable size, steel – 01 Nos.</li> <li>• Pressure Gauge, Glycerin-damped, Indication range of: 0-100 bar, Nominal diameter: 63 mm – 01 Nos.</li> <li>• Four-Way distributor with five ports, equipped with a suitable pressure gauge – 01 Nos.</li> <li>• Pressure sequence valve with manual adjustment rotary knob. – 01 Nos.</li> <li>• Double acting hydraulic cylinder Piston rod diameter 10-15 mm, Stroke length 150-200 mm – 01 Nos.</li> <li>• Suitable Weight for vertical loading of hydraulic cylinder – 01 Nos.</li> <li>• Mounting kit for weight, for realizing pulling and pushing load – 01 Nos.</li> <li>• Hydraulic motor– 01 Nos.</li> <li>• 3/2-way directional control valve with hand lever actuation. 1 No.</li> <li>• 4/2-way directional control valve, with hand lever actuation – 01 Nos.</li> <li>• 4/3-way directional control valve with hand lever actuation – 01 Nos.</li> <li>• One-way flow control valve, adjustable by rotary knob – 01 Nos.</li> </ul>													
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

1152

<ul style="list-style-type: none"> <li>• Non-return valve – 01 Nos.</li> <li>• Flow Divider– 01 Nos.</li> <li>• Pressure reducing valve: 1No</li> <li>• Pilot-operated check valve, pilot to open. – 01 Nos.</li> <li>• Two-way flow control valve, with manual adjustment of flow rate. – 01 Nos.</li> <li>• T-Connector, with self-sealing coupling nipples and quick coupling socket – 02 Nos.</li> <li>• Measuring jar, transparent, 2 litre, with a scale– 01 Nos.</li> </ul>													
<p><b>5. Electro-Hydraulic Component set consisting of the following:</b></p> <ul style="list-style-type: none"> <li>• Power supply unit, electric, suitable for an input voltage of 85 - 265 V AC, output voltage of 24 V DC, and output current of 4 A (Approx.). The unit should be designed for protection against short-circuit. – 01 Nos.</li> <li>• 4/2-way discrete directional control solenoid valve– 01 Nos.</li> <li>• 4/3-way discrete directional control solenoid valve– 01 Nos.</li> <li>• 2/2-way electrically operated valve – 01 Nos.</li> </ul>													

	<ul style="list-style-type: none"> <li>• Signal input box, electrical, consisting of three illuminated momentary contact pushbutton switches (each 1 NO + NC) and one illuminated maintained – contact switch (1 NO +1 NC), power supply rail, Contact load 2A – 04 Nos.</li> <li>• Relay unit, with 4 change – over contacts, suitable for 24 V DC, 5 A – 04 Nos.</li> <li>• PLC Controller with programming cable- 01 Nos.</li> <li>• Limit Switch, electrical– 02 Nos.</li> <li>• Pressure switch– 01 Nos.</li> <li>• Proximity switch,– 02 Nos.</li> <li>• Set of laboratory cables (4 mm) with banana connections and safety plugs at both ends in red and blue colour in the following lengths and quantities: - 01 Set</li> </ul> <p>Every Hydraulic component having Hydraulic High-pressure Quick coupling connector on it so that it can performs various Hydraulic circuits with different connections.</p> <p>Assorted Hydraulic High pressure pipe should be provided with suitable size and length with connector &amp; First fill hydraulic oil to conduct the experiments.</p> <p><b>6. PC / Computer Workstation: - 01 Nos.</b></p>													
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

152

	<ul style="list-style-type: none"> <li>The kit should be supplied with an integrated PC/ computer workstation with following minimum specifications: Intel i5 processor with 08 GB RAM, 256 GB SSD, 19- inch or better LED Monitor, keyboard and Mouse. – 01 Set.</li> </ul> <p><b>7. Cut section models for the following hydraulic components: - 01 Set</b></p> <ul style="list-style-type: none"> <li>Pressure Gauge – 1 No.</li> <li>Double acting hydraulic cylinder – 1 No.</li> <li>4/2-way directional control valve with hand lever actuation. – 1 No.</li> <li>One-way flow control valve, adjustable by rotary knob – 01 Nos.</li> <li>Non-return valve – 01 Nos.</li> <li>Pressure reducing valve - 1No</li> <li>4/3-way discrete directional control solenoid valve– 01 No.</li> </ul> <p><b>8. Hydraulic simulation Software:</b></p> <p>It should be possible to easily reproduce any lab requirement or complete system to simulate, analyze and troubleshoot them before hand on experience. Should enable to design, hydraulic as well as electrical circuits, simulate /design of a complete hydraulic circuit. With</p>													
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

202

	<p>hydraulic components in the library. Perpetual license. – 01 License</p> <p>With hydraulic components in the library.</p> <p>Following Library should content with simulation software</p> <p>Hydraulic and Proportional Hydraulic</p> <p>Electric Controls</p> <p>PLC Siemens</p> <p>Embedded view</p> <p>Sequence Diagram</p> <p>9. The bidder should provide operational/ instruction manual with the product.</p> <p>10. Training is to be given as and when needed during warranty period.</p>										
7	<p><b><u>MULTIMEDIA BASED SIMULATOR FOR CNC TECHNOLOGY AND INTERACTIVE CNC PART PROGRAMMING SOFTWARE</u></b></p> <p><b>Technical Specification:</b></p> <p>Multimedia based simulator for CNC technology and interactive CNC part programming software for turning &amp; milling with virtual machine operation and simulation using popular operation control system such as Fanuc, Siemens, etc. (Web based or licensed based) (09 trainees + 01 faculty) With help of this software the trainees must be able to Write, Edit, Verify &amp; Simulate.</p> <p><b>Multimedia based simulator for CNC technology:</b></p>	1	1	1	1	0	1	1	6		

112

<p>1. The software must enable teaching of CNC milling and turning technology aligned with ITI syllabus in a highly effective manner through multimedia such as 3D Interactive Graphics, videos, animations, sound, pictures and text. Software must use video clips from actual machines, cutting tools and machining situations in industry, to enable the trainee to interactively learn and understand how CNC machines are used in industry and establish a link between theory and practice.</p> <p>2. Interactive Multimedia: Trainee must be able to interact with the Software to learn concepts interactively. All content must be easily accessible by menus and links and open the relevant Multimedia content.</p> <p>3. 3D Graphical Objects: Critical concepts must be explained through interactive 3D graphics – trainee must be able to see 3D objects such as Cutting Tools, Inserts, turning holders, milling cutter holders, tool parts etc.</p> <p>4. Cutting tools used in CNC machines: Software must include turning tools, grooving tools, threading tools, drill, tap, reamer, face mill, end mill, bore, finish bore, thread mill, T slot mill, Countersink, chamfer mill, side and face mill, etc. Indexable insert geometries, cutting edge geometry, ISO nomenclature for inserts.</p> <p>5. Tool holders: Software must include Tool holders used in turning – turning, grooving, threading, etc. Tool holders used in milling – side lock, face mill, collet, morse taper,</p>													
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

	<p>heat shrink, floating tap holder. Each topic must be explained by a text explanation, animations, and videos. ISO nomenclature for turning and boring holders.</p> <p>6. CNC milling operations: Software must include Face milling, pocket milling, side milling, chamfer milling, spot facing, helical boring, side slot milling, thread milling, cylindrical interpolation, T slot milling, groove milling, center drilling, drilling, peck drilling, deep drilling, combination hole drilling, countersinking, counter-boring, back spot-facing, rough boring, finish boring, tapping. Each operation must be explained by a text explanation, graphic of the tool path, animation, and video.</p> <p>7. CNC turning operations: Software must include rough turning, rough facing, finish turning, finish facing, threading, radial grooving, face grooving, parting off, drilling, peck drilling, reaming, tapping. Each operation must be explained by a text explanation, graphic of the tool path, animation, and video.</p> <p>8. Cutting parameters: Software must include Cutting Parameters in turning and milling – constant surface speed, limiting spindle speed, tool wear, types of tool wear, tool life, effect of nose radius and feed rate on surface finish in turning.</p> <p>9. CNC Machine construction: Software must include Bed, guideways, ball screws, LM guides, spindle, chuck, steady rest, tailstock, rotary table, auto pallet changer, tool</p>													
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

changers and turrets. Each topic must be explained by a text explanation, animations, and videos of internals of CNC machines.

10. Work holding used in CNC machines: Software must include tailstock, steady rest, chuck, hard and soft jaws, soft jaw boring.

11. CNC Programming: Software must include CNC Programming concepts and G and M codes, ISO programming formats, canned cycles, subprograms etc. Each programming command must be explained with a text explanation, graphic of the tool path, animation, real life video and exercises.

## Interactive CNC part programming software for WRITE, EDIT, VERIFY & SIMULATE

1. Software must enable the trainee to independently learn CNC programming, as specified in the ITI syllabus;

2. Software must have the facility for the trainee to WRITE, EDIT, VERIFY AND SIMULATE CNC programs in Fanuc, Siemens, Fagor and Mitsubishi controller formats for turning and milling applications.

3. Software must allow the trainee to assign cutting tools from an industry standard tools library, for simulation.

4. Single software must have menu option to select Fanuc, Siemens, Fagor and Mitsubishi CNC controller formats for turning and milling applications.

	<p>5. Software must debug the manually written part programs for program syntax errors like illegal codes, cutting without starting the spindle, cutting without specifying feed rate, not specifying program number, not specifying program end code, not specifying tool change code, comments entered in wrong format (e.g., without brackets in Fanuc), improper canned cycle format. Must be suitable for Fanuc, Siemens, Fagor and Mitsubishi controller formats for turning and milling applications</p> <p>6. Software must display the nature of the syntax errors and list them in a single window, for easy understanding of the trainee.</p> <p>7. Line numbers in the program which have syntax errors must be highlighted by clicking on the error shown in the list so that the trainee can quickly correct them. During syntax check, the total number of lines in the program and the number of lines checked must be displayed.</p> <p>8. Tools library must have all commonly used tool types and sizes for milling, with graphical user interface for configuration and selection – face mill, end mill, side-and-face mill, chamfer mill, T-slot mill, thread mill, ball nose end mill, drill, center drill, bore, reamer, countersink, back-spot-face, tap.</p> <p>9. Tools library must have all commonly used tool types and sizes for turning, with graphical user interface for configuration and selection – turning, boring, back boring,</p>													
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

external grooving, face grooving, internal grooving, parting, external threading, internal threading, center drill Form A, center drill form B, twist drill, insert drill, hole mill, trepanning cutter, reamer, tap, back boring, countersinking. Turning, boring and back boring holders must be configurable with ISO nomenclature.

<p>Mitsubishi controller program formats for turning and milling applications.</p> <p>16. During simulation, machining data must be displayed dynamically: Tool number, tool name, type of motion (rapid traverse / feed traverse, etc.), tool coordinates, spindle speed / cutting speed, feed rate, spindle rotation direction.</p> <p>17. During simulation, the current block being executed must be highlighted. Simulation must be possible in single step mode for closer verification. Software must indicate collisions by special highlighting in the tool path simulation. Speed of the simulation must be able to be controlled by an easy slider feature.</p> <p>18. Software must be able to interpret and simulate ISO 6983 / RS274 programming format for Fanuc 0iT, Siemens 828D, Fagor 8055 and Mitsubishi M70 systems including cycles and subprogram commands.</p> <p>19. Must be capable of simulating basic motions, subprograms and canned cycles for turning and milling. Should simulate turning codes and canned cycles: G90, G92, G94, G71, G72, G73, G74, G75, and M98. Should simulate milling codes and canned cycles: G81, G82, G83, G84, G85, G76, G87, and M98.</p> <p>20. Graphical tool path simulation must show the raw material, finished part, tool shape. In turning, during simulation it must be possible to view the insert shape and</p>														
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

152

<p>whole tool holder to scale and exact shape. Graphical simulation must automatically proceed according to setting: till next motion, next tool or till end of all operations.</p> <p><b>Virtual machining operation</b></p> <ol style="list-style-type: none"> <li>1. Software must facilitate trainees in comprehending CNC milling and turning programming. Its interactive screens simplify complex machining parameters, requiring minimal learning time. Trainees can observe virtual machining operations on-screen, helping them to understand machining, making their transition to the industry easy.</li> <li>2. Inbuilt CAD must allow quick definition of turning areas like grooves, undercuts and shafts, and milling areas like hole patterns, milling areas and slots.</li> <li>3. Must support common milling operations: Face milling, pocket milling, side milling, chamfer milling, slot milling, side slot milling, T slot milling, spot facing, helical boring, thread milling, cylindrical interpolation, text engraving, center drilling, drilling, peck drilling, deep drilling, boring, combination hole drilling, countersinking, counter-boring, back spot-facing, tapping, reaming, finish boring.</li> <li>4. Must support common turning operations: Plain turning, plain facing, contour turning, contour facing, contour turning with cuts along contour, contour facing with cuts along contour, finish turning, finish facing, threading,</li> </ol>													
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

[illegible]

252

<p>9. Should calculate and display spindle power required for each operation, present the spindle power in a chart or graph, ensuring educational value on optimal use and safety aspects. Show cycle times based on machine parameters axes acceleration, deceleration time, spindle acceleration and deceleration time, tool change time, and time for miscellaneous functions.</p> <p>10. PC should be supplied with the following Minimum configuration (Quantity – 01 No.)</p> <ul style="list-style-type: none"> <li>• WINDOWS 10</li> <li>• i5</li> <li>• 8GB RAM</li> <li>• 100 GB HDD /1024x768 VGA,</li> <li>• OpenGL,</li> <li>• 22" LED display,</li> <li>• Key Board, Speaker, Mouse, and USB port.</li> </ul> <p><b>General requirements</b></p> <p>Software must run on Microsoft WINDOWS 10</p> <p>License must be permanent and for lifetime.</p> <p>Software must be protected from piracy by a network USB key</p> <p>License must be concurrent users on a wired LAN network.</p> <p>All PCs must be in a single LAN network</p> <p>Printed user manuals must be provided</p>													
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

212

	<p>Customized Instructor's CNC workbook must be provided</p> <p>The bidder must provide operational/ instruction manual with the product</p> <p>Training is to be given as and when needed during warranty period.</p>										
8	<p><b><u>VAPOUR COMPRESSION SYSTEM TEST RIG</u></b></p> <p>Technical Specifications:</p> <ul style="list-style-type: none"> <li>Capacity: 1/3-0.5 Ton of refrigeration</li> <li>Compressor: Hermetically Sealed 1 phase, 230V, 15A</li> <li>Condenser:- Air Cooled copper tube Condenser with Variable speed fan.</li> <li>The inner chamber of the calorimeter - made of Stainless Steel duly thermally insulated, Immersion type-copper cooling coil inside.</li> <li>A dip type Electrical immersion heater to vary the initial temperature of the water for balancing the refrigeration effects.</li> <li>Outer chamber of the Calorimeter -fabricated out of Stainless Steel Sheet.</li> <li>Control Panel: - MS with Powder coated</li> <li>Expansion Device: Capillary Tube/Expansion Valve</li> <li>Temperature Indicator: Digital</li> </ul> <p><b>Temperature Indicator 'RTD' thermocouples in following points.</b></p> <p><b>For refrigerant side</b></p> <ol style="list-style-type: none"> <li>1. Compressor Inlet</li> <li>2. Compressor Discharge</li> <li>3. Condenser Inlet</li> <li>4. Condenser outlet</li> <li>5. Inlet of expansion device</li> <li>6. Exit of Expansion</li> </ol>	1	1	0	1	0	1	1	1	6	

252

	<p>7. Evaporator inlet 8. Evaporator outlet 9. For water temperature at inlet and outlet in evaporator.</p> <p><b>Pressure measurement arrangements at</b></p> <p>1. Compressor Inlet 2. Compressor Discharge 3. Condenser outlet 4. Evaporator inlet</p> <p><b>MS Stand:</b> - The unit should be assembled on heavy-duty angle iron base.</p> <p><b>Refrigerant:</b> - R-134a/Eco Friendly</p> <p><b>Rotameter</b> for measuring flow rate of liquid refrigerant</p> <p><b>Digital wattmeter</b> for Power consumption measurement</p> <p>The bidder must provide operational/ instruction manual with the product</p> <p>Training is to be given as and when needed during warranty period.</p>									
9	<p><b><u>PELTON WHEEL TURBINE TEST RIG</u></b></p> <ul style="list-style-type: none"> <li>A self-contained recirculation type unit. All the measurements are provided to evaluate the performance of the pump. The system is closed circuit.</li> </ul> <p><b>Specifications:</b></p> <p>Sump Tank:</p> <p>M.O.C : MS</p> <p>Inner Side Coating : Fiber glass lined</p> <p>Capacity : 300 Liter.</p> <p>Tank to store sufficient water for independent circulation through the unit experimentation and arrange within the floor space of main unit.</p> <p>Turbine:</p> <p>Type : Pelton Turbine</p> <p>Size : 50 mm</p> <p>Power develop capacity : 1 KW at 1000 RPM with a flow of about 450 LPM at 25 meters supply head.</p> <p>Centrifugal Pump:</p> <p>Type : Monoblock</p> <p>Power : 3 HP,</p>	1	1	0	1	1	0	1	1	6

152

	<p>Supply Voltage : 3 Phases, 440V</p> <p>Pump Size : Suction size 50-65 mm &amp; Delivery size 50-65mm</p> <p>Pump Discharge : 350 - 430 LPM</p> <p>Delivery Head : 27 meters.</p> <p>RPM : 2800 - 3000 RPM</p> <ul style="list-style-type: none"> <li>Rope Brake Dynamometer is used to measure the output. Spring Balance 10 kg (Any Standard Make) and Runner diameter 220mm Runner coupled to Pelton wheel.</li> <li>Orifice meter of 32mm is used to measure the flow rate of water through pressure gauge (4 kg/cm<sup>2</sup>) which measure the pressure heads.</li> <li>Discharge control valve, by-pass valve of 2-1/2" (Any Standard Make) used to control the flow rate of water.</li> <li>Rigid MS frame work compactly fitted with all the above items as a self-sufficient package unit suitable for operation without any foundation.</li> <li>Control panel with Switch, indicator and starter fitted on it.</li> <li>Operation/ Instruction manual.</li> </ul> <p><b>Experimental Capabilities:</b></p> <ul style="list-style-type: none"> <li>To determine the efficiency of Turbine</li> <li>To draw the characteristics curve of Turbine.</li> </ul>										
10	<p><b><u>AIR CONDITIONING TEST RIG</u></b></p> <p>Required Air conditioning test rigs for conducting experiments on a vapour compression air conditioning unit. The test rig should be sufficiently equipped for determining the unit's cop, both actual and theoretical, and performing psychometric calculations.</p> <p><b>Compressor</b></p> <p>Type : Hermetically sealed compressor</p>	1	1	0	1	1	0	1	1	6	

212

[illegible]

2152

[illegible]

452

	<ul style="list-style-type: none"> <li>• Expansion device: Thermostatic expansion valve or capillary system</li> <li>• L.P. – H.P. cutout switch</li> <li>• Finned air heaters with control for heating &amp; de-humidification</li> <li>• Wet &amp; dry bulb thermocouple for measuring inlet &amp; outlet air in evaporation</li> <li>• Thermocouples to measure compressor, condenser and evaporator temperature</li> <li>• Anemometer for air velocity measurements in air duct</li> <li>• Axial fan for air flow duct</li> <li>• Control Panel : Consists of MCB, On / Off switch, Indicating lamp for compressor heater and fan.</li> </ul> <p>The whole set-up should be well designed and arranged on a rigid structure painted with industrial Paint. The unit should one time complete gas charging with working condition.</p> <p>The bidder must provide operations/ instruction manual with the product</p> <p>Training is to be provided as and when needed during warranty period.</p>													
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

152

11	<p><b><u>SINGLE CYLINDER DIESEL ENGINE TEST RIG</u></b></p> <p>Specifications: The Single Cylinder Diesel Engine Test Rig will determine BHP, Mechanical &amp; Thermal Efficiencies, Air-Fuel Ratio, Specific Fuel Consumption and Heat Balance Sheet at various loads.</p> <ul style="list-style-type: none"> <li>Type of Engine: 4 Stroke Vertical Diesel engine</li> <li>No of Cylinder: one</li> <li>Rated power: 5-8 HP</li> <li>Rated Speed: 1500 RPM</li> <li>Loading Arrangements: Rope brake dynamometer with Spring Balance (Provision for cooling the drum using water)</li> </ul> <p>MEASUREMENTS:</p> <ul style="list-style-type: none"> <li>Fuel Intake: Fuel Tank 3 to 5 litre capacity/Burette/3-Way Cock</li> <li>Air Intake: Air Tank/Orifice Plate / Manometer</li> <li>Temperature: Engine Jacket Cooling inlet / Engine Jacket Cooling Outlet, Exhaust Gas Outlet and Ambient.</li> </ul> <p>INSTRUMENTATION:</p> <ul style="list-style-type: none"> <li>Temperature: Multipoint Digital Temperature Indicator with Thermocouples</li> <li>Cooling Water (Engine Jacket): Glass tube Rotameter</li> <li>Speed: Digital RPM indicator with Proximity sensor</li> <li>Exhaust gas calorimeter</li> </ul> <p>EXPERIMENTAL CAPABILITIES:</p> <ul style="list-style-type: none"> <li>BHP/SFC/Economical Speed Test/Brake Thermal Efficiency, Volumetric Efficiency</li> <li>Heat Balance Sheet/Mechanical</li> <li>Efficiency/IHP measurement (With Device For Drawing P-V Diagram).</li> </ul> <p>The equipment will be self-contained in all respect including vibromounts/stop watch/manual etc.</p>	1	1	0	1	0	1	1	1	6
----	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---	---	---	---	---	---	---	---	---

25

	Engine & Other mentioned parts will be mounted on sturdy base. The bidder should provide operation/ instruction manual with the product. Training is to be given as and when needed during warranty period.										
12	<b><u>Thermal Conductivity of a Composite Wall/ Fix Slab with Computer Control</u></b> Specification: The working model should be housed on a M.S. Square tube frame and powder coated metal panel with instrumentation and able to determine thermal conductivity of a Composite Wall/ hear transfer co-efficient of thick slab with a control Panel Stand-alone Metallic powder coated Table Type panel. <b>Heater Assembly:</b> Make : Standard Capacity : 1000 Watt Type : Round Coil, sandwiched Diameter : 300 mm <b>Test Specimen:</b> Diameter : 300 mm Mild Steel : 20 mm on both sides of the heater assembly, Asbestos : 15 mm on both sides of the heater assembly, Wooden Slab : 10 mm on both sides of the heater assembly, Four Nos. of 'C' clamps to compress the assembly to remove air gaps. <b>Temperature Scanner</b>	1	1	0	1	1	1	1	1	7	



fish

[illegible]

	<p>should enable students to investigate and understand the principles of process in a laboratory environment with the minimum technical support. Latest Windows Interface. Two-way communication for control and data acquisition, Data display capability.</p> <p>The whole assembly is covered with Wooden Chamber with Perspex Cover on one side and Formica on all the other sides.</p> <p>The total set up should be mounted on base plate with powder-coated panel and a good quality painted stand.</p>										
13	<p><b><u>Thermal Conductivity of a Metal Rod</u></b></p> <p>Specification: The working model should be housed on a M.S. Square tube frame and powder coated metal panel with instrumentation and able to conduct standard experiment to determine Thermal Conductivity of a Metal Rod.</p> <p>The experimental set up consists of the Copper metal bar, one end of which is heated by an electric heater while the other end of the bar projects inside the cooling water jacket. The cylindrical shell filled with the asbestos insulating powder surrounds the middle portion of the bar. The temperature of the bar is measured at different sections from while the radial temperature distribution is measured by separate thermocouples at two sections from the center of the rod in the insulating shell from the heater end of the metal rod. The cold-water inlet temperature and outlet temperature also indicated on meter.</p> <p>The heater is provided with a Dimmerstat for controlling the heat input. Water under constant head condition is circulated through the jacket and its flow rate and temperature rise are noted.</p> <p><b>TECHNICAL SPECIFICATIONS:</b></p>	1	1	0	1	1	1	1	1	1	7

	<p><b>Metal Bar:</b>  <b>Material :</b> Copper, Size : 25 (D) x 600 (L) mm., Test length : 300 mm.  <b>Insulated Shell:</b>Material : MS , Size : 100 (D) x 550 (L) mm. Insulation : Asbestos powder  <b>Thermocouple Position:</b></p> <ul style="list-style-type: none"> <li>No. of thermocouples mounted on the Bar: 6 (viz. 1-6)</li> <li>No. of thermocouples in the insulation shell: 4 (viz. 7-10)</li> <li>Water Inlet Thermocouple: (viz. 11)</li> <li>Water Outlet Thermocouple: (viz. 12)</li> </ul> <p><b>Heater:</b> Type : Coil/Bend Ni-chrome wire  <b>Suitable Water Pump</b> for water circulation  <b>Water Tank:</b> 18 SWG SS sheet, Size : 60 liter.  <b>Temperature Sensor:</b> thermocouple with Digital Temperature display  <b>Power Supply :</b> 220 V AC, 5 amp.  <b>CONTROL PANEL:</b></p> <ul style="list-style-type: none"> <li>Mains, On/Off Switch, Dimmer-stat, Energy Meter</li> <li>Measuring flask for water flow rate</li> </ul> <p>The set up will be mounted on a suitable MS frame          Structure with attractive color and control panel of good powder coating.          The detail-operating manual will be provided with the setup.          Training is to be provided as and when needed during the warranty period.</p>										
14	<p><b><u>PLATE TYPE HEAT EXCHANGER WITH COMPUTER CONTROL</u></b>  <b>Technical Specification:</b>  <b>PID Controller:</b>          Input : Universal          Output : 4 – 20 mA          Communication: RS 485 ASCII/ Modbus communication          Features : Auto tuning, Auto/ Manual Mode Facility          Control Method : Heating Mode or Cooling Mode</p>	1	0	0	1	1	1	1	1	6	

### Technical Specification:

### PID Controller:

Communication: RS 485 ASCII/ Modbus communication  
Features : Auto tuning, Auto/ Manual Mode Facility  
Control Method : Heating Mode or Cooling Mode

Ask

[illegible]

452

[illegible]

152

<p> <b>Metering Tube</b> : Borosilicate Glass,  <b>Valve</b> : Needle type, integrated  <b>Mounting</b> : Vertical         </p> <p> <b>Air Regulator:</b>  <b>Service</b> : Air  <b>Max. Input Pressure</b> : 10 kg/ cm<sup>2</sup>,  <b>Hose Connection</b> : ¼",         </p> <p> <b>Current Meter:</b>          1. To indicate &amp; measure Temperature Transmitter Output (4 - 20 mA),          2. To indicate &amp; measure I/P Converter Input (4 - 20 mA),         </p> <p> <b>Pressure Gauge:</b>          To indicate &amp; measure supply air pressure to I/P Converter         </p> <p> <b>Thyristor Drive:</b>  <b>Rating</b> : 2000 W,  <b>Operating Voltage</b> : 230 V AC, /50 HZ  <b>Input Signal</b> : 4-20 mA,  <b>Output</b> : To Heater of Hot water tank,         </p> <p> <b>Heater Controller:</b>  <b>Type</b> : PID,  <b>Input</b> : RTD/ TC  <b>Output</b> : 4 - 20 mA,  <b>Display</b> : Digital,  <b>Power Supply</b> : 230 V AC, 5 Amp.         </p> <p> <b>Temperature Scanner:</b>  <b>Input</b> : RTD/Thermocouple  <b>No. of Channel</b> : 8 channels,  <b>Range</b> : 0 to 100 °C  <b>Display</b> : 7 Segment 4-digit LED display  <b>Power</b> : 220 V AC, 50 Hz         </p> <p> <b>Converter:</b>          Suitable Converter will be provided to connect instrument with computer         </p> <p> <b>Control trainer software:</b> </p>											
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--	--

1.2

<p>The software package offered contains necessary hardware and software required to interface the setup to a personal computer thus creating full software controlled experimental and instructional environment. The package will enable students to investigate and understand the principles of process control in a laboratory environment with the minimum technical support. Windows compatible software package has been developed using SCADA software. This provides direct control of the processes (control trainer) used, including open and closed loop control, plus multi loop configurations associated with remote set point control (as appropriate). Comprehensive laboratory sheets for all the experiments are included in the manual with setting up information, background theory, operational procedures and all other relevant information.</p>													
<p><b>Industrial SCADA software:</b></p> <ul style="list-style-type: none"> <li>• User friendly Windows interface.</li> <li>• Two-way communication for control and data acquisition.</li> <li>• Auto-configuration with multi-port selection option.</li> </ul>													

1152

<ul style="list-style-type: none"> <li>• Manual (Open Loop) and automatic control (Closed Loop).</li> <li>• Selectable P, P+I, P+D and P+I+D mode.</li> <li>• Bump less transfer between open and closed loop operation.</li> <li>• Live mimic diagrams of the process including set point, process variable and output.</li> <li>• Dynamic multi-color data display capability (tabular, chart or graphical form).</li> <li>• Powerful graphics and trend chart capabilities with customization.</li> </ul> <p><b>Computer &amp; peripherals:</b></p> <ul style="list-style-type: none"> <li>• Intel Core i3 or higher or Latest VERSION</li> <li>• MINIMUM 4 GB RAM</li> <li>• MINIMUM 17" LED MONITOR</li> <li>• MINIMUM 500GB HARD DISK</li> <li>• KEYBOARD AND MOUSE SET</li> <li>• SPEAKER SET</li> </ul> <p>The detail-operating manual should be provided with the setup. Training is to be provided as and when needed during the warranty period.</p>										
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--	--	--	--	--