

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Back Side of SP Office, In front of Urban PHC, PO/Dist- Rayagada –765001**

Web: [www.ugmit.org.in](http://www.ugmit.org.in), E- mail: [ugmit1979@yahoo.in](mailto:ugmit1979@yahoo.in), Tel. No - 06856 - 350017

**BID REFERENCE NO- 954 / UGMIT. RAYAGADA / TENDER /2023-24**

**BIDDING DOCUMENTS**

**UNDER**

**NATIONAL COMPETITIVE BIDDING**

**FOR**

**PROCUREMENT AND SUPPLY OF  
PNEUMATIC, HYDRAULIC TRAINER  
KIT & ACCESSORIES**

**Bidding Document: Not transferable**

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**Tender Notice No.- 954 / UGMIT–2023-24 / Dated: 27.06.2023**

**TENDER FOR SUPPLY OF PNEUMATIC,  
HYDRAULIC TRAINER KIT & ACCESSORIES**

**Bidding Document: Not transferable**

Price of bidding document	Rs. 5,000/- (NON REFUNDABLE) Only by A/c Payee Bank Draft in favor of Principal, Utkal Gourav Madhusudan Institute of Technology payable at Rayagada from any Nationalized Bank)
Date of commencement of Sale of bidding document/ Download date of bidding documents from website: Institute/ DTE&T, Odisha	29.06.2023 at 11.00 AM
Last date for receiving queries through email (if any)	13.07.2023 at 4.00 PM
Pre bid Meeting/ Response to queries(Through VC)	18.07.2023 by 4.00 PM
Issue of Corrigendum(if any)	20.07.2023 by 4.00 PM
Last date and time for Receipt of bids (By Regd. Post/Speed Post/By Hand in the Institute Tender drop box)	22.08.2023 up to 4.00 PM
Time and date of opening of Tender & Technical bid	24.08.2023 at 11.00 AM
Place of opening of tender and Address for communication and Receipt of bid documents	Utkal Gourav Madhusudan Institute of Technology, Back Side of SP Office, In front of Urban PHC, PO/Dist- Rayagada –765001  Email - <a href="mailto:ugmit1979@yahoo.in">ugmit1979@yahoo.in</a> ,  Website - <a href="http://www.ugmit.org.in">www.ugmit.org.in</a>  Tel. No. - 06856 -350017
EMD value	2% of Bid amount  (Only by A/c Payee Bank Draft in favor of Principal, Utkal Gourav Madhusudan Institute of Technology payable at Rayagada from any Nationalized Bank)

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**SECTION- I**  
**INVITATION FOR BIDS (IFB)**

## UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

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### SECTION I: INVITATION FOR BIDS (IFB)

#### 1. INTRODUCTION:

Sealed Bids (properly stitched separately) in two separate covers (**Technical bid and Financial bid**) are invited by the Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada (Odisha) from the manufacturers / authorized distributors/ dealers/ Suppliers for supply of Instrument, equipment, machineries etc. of reputed make (National/ International) for Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada (Odisha). A complete set of bidding documents may be purchased by prospective bidders on payment of a non-refundable fee as indicated below in the form of a Demand Draft in favour of Principal, Utkal Gourav Madhusudan Institute of Technology, Rayagada (Odisha) from any Nationalized/ Scheduled Bank from the office of Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada (Odisha) during office hours from **11.00 AM to PM** on all working days either in person or by post.

The Bidders may download the **Tender Documents** directly from the website available at [www.ugmit.org.in](http://www.ugmit.org.in) and the **Tender cost fee of Rs.5,000/- (Non-refundable)** by way of separate Demand Draft drawn in favour of **Principal, Utkal Gourav Madhusudan Institute of Technology, Rayagada (Odisha)** payable at Rayagada should be enclosed along with the Bid. The Bidders should specifically super-scribe, **“Downloaded from the WEBSITE”** on the top left corner of the envelope. The Tender cost fee and the EMD amount should be submitted separately in separate demand drafts. In case of any bid amendment and clarification, responsibility lies with the bidders to collect the same from the website before last date of purchase of tender document and the purchaser shall have no responsibility for any delay/ omission on part of the bidder.

**TIME SCHEDULE:**

Price of bidding document	<b>Rs. 5,000/- (NON REFUNDABLE) (Only by A/c Payee Bank Draft in favor of Principal, Utkal Gourav Madhusudan Institute of Technology, Rayagada payable at Rayagada from any Nationalized Bank)</b>
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<b>EMD value</b>	<b>2% of Bid amount (Only by A/c Payee Bank Draft in favor of Principal, Utkal Gourav Madhusudan Institute of Technology payable at Rayagada from any Nationalized Bank)</b>

**SECTION-II**

**GENERAL TERMS AND CONDITIONS**

**GENERAL TERMS & CONDITIONS OF CONTRACT FOR SUPPLY, INSTALLATION AND  
DEMONSTRATION OF THE MACHINERIES REQUIRED FOR UTKAL GOURAV  
MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA (ODISHA).**

**Clause No.**

**DESCRIPTION**

**1 Document Establishing Bidder's Eligibility &Qualification**

The Bidders shall furnish as part of the Bid the following Documents establishing Bidder's eligibility and qualification to perform the contract, to the Purchaser's satisfaction.

Manufacturer / Authorized Distributor / Dealer having valid license / certificates for the quoted item and the direct Importers holding valid Import License of the product are eligible to participate in the Bid.

The Bidder whether manufacturer/ distributor/ dealer must have experience of supply and installation of the quoted items in reputed Government Institutions / Public Undertakings / abroad during last preceding 3(Three) years reckoned from the date of bid opening and the details must be submitted as per **Annexure- IV** along with documentary proof.

Bidder shall have to provide operational Training for Machineries to one Official of UGMIT, Rayagada for each package at Consignee site **at least for 7 days whichever is suitable to Purchaser**

**2 Document Establishing Goods Eligibility**

The instruments and equipment offered against the schedule of requirement of instruments, equipment and Machineries should be in accordance with the stipulated specifications and of reputed brand as per **Annexure-XI**.

The documentary evidence establishing the brand and the model may be in the form of literature, pamphlets, manuals etc.

Detailed description of instruments and equipment with essential technical and performance characteristics may also be furnished.

The quantity shown in the bid can be increased or decreased to any extent depending upon the actual requirement. The number of items to be purchased in each package may vary / may not be also purchased considering the availability of funds and cost of the equipments.

The instruments and equipment should have testing certificate for its satisfactory functioning.

**3 Technical Bid (COVER – A)**

The following document should be submitted after being attested by Notary Public.

- Earnest Money Deposit.
- Technical details of the equipment and machineries as per **Annexure-XI**
- Copy of the manufacturing license/ import license/ Authorized Distributor/ Dealer certificates
- Copy of the authorization from the Manufacturing Company / Authorized Distributor / Dealer. **Annexure-III**



- GST clearance certificate/current GST filing return & GST Registration certificate.
- Performance/ Market standing certificate as per **Annexure-IV** establishing that the Bidders have executed supply of such items as mentioned in Schedule of Requirement of instruments and equipment to different Govt. Organizations/ Government PSUs / reputed Private Institutions/ Public Sector.
- Copy of the fresh IT Return & PAN Card.
- Detail name, address, telephone no. fax, e-mail of the firm and of the Director/Managing Director/ Proprietor of the firm (As per **Annexure VI**)
- The original bid book signed & sealed by authorized person in each page as a token of acceptance of all terms and conditions of the tender with original receipt.
- Documentary evidence establishing that the instruments & equipment and ancillary services to be supplied by the Bidders shall confirm to the Bidding Document
- Check list with detail of the document enclosed with page numbered. The document should be serially arranged as per this **Annexure VII** and should be securely tied and bound.
- Bidders are required to submit Para-wise compliance to each parameter of specification.
- Any deviation in the specification of the item including standard accessories / optional accessories should be marked in **bold letters**.
- Bid form to be attached as per **Annexure-V**
- Details of foundation drawing for instruments and equipment, if any, should be provided without which the bid may be rejected.
- Willingness to provide operational Training for Machineries to one Official of each consignee at Consignee site **at least for 7 days whichever is suitable to Purchaser**

#### **4 Price Bid (COVER-B)**

- The bid form giving the rates for various instruments & equipment and other items should be submitted in separate sealed cover hereinafter called **Cover B (Price Bid)**. **Price Bid (Cover - B)** of the bidders who qualify in **Technical Bid (Cover – A)** will only be opened.
- The price of the each item shall be quoted as per the prescribed Price Schedule Format at **Annexure-I** along with Packing, Forwarding and Handling charges, Insurance charges, Freight up to destination including unloading, GST Registration & GST Clearance/ Current GST filing return, commissioning, incidental service including testing and training with total price per item at FOR destination. The bidders are required to submit the individual price of each instrument(s) and equipment(s) as indicated in the schedule of requirements.
- Each quoted item and all accessories should cover the warranty / guarantee for **36 (Thirty Six)** months from the date of commissioning. (**Annexure-II**).

The **Cover B (Price Bid)** of the qualifying bidders will be opened at the Office of the **Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada (Odisha)**, after technical evaluation.

The cost of standard accessories and optional accessories shall have to be quoted separately.

## 5 **BID CONDITIONS**

- The bidder should quote for the full quantity of the items or part of the package. The scope of Supply as mentioned in the schedule of requirements if not sufficient for full function of the Furniture, Equipment/Machinery should be intimated in writing before date of opening of Bid.
- The quoted rate shall not vary with the quantum of order placed or destination point.
- A copy of the original bid conditions and the schedules should be signed by the bidder at the bottom of each page with the office seal duly affixed and returned along with the bid. Bid schedule should be duly filled in with an **index** and **page number** for the documents, enclosures & EMD etc. **Paging** must be done for all the documents submitted.
- Bids should be type written or Computerized and every correction/ over writing in the bid should invariably be attested with signature of the bidder with date before submission of the bids to the authorities concerned. No revision of price upward or downward will be allowed once the bid is opened. However the purchaser shall have the right for considering the exchange rate of foreign currencies on verification of documents.

### **Language of Bid.**

The Bid prepared by the bidders and all correspondence and document relating to the bid exchanged by the Bidders and the *Purchaser*, shall be written in the English language. Supporting document and printed literature furnished by the Bidders may be written in another language provided they are accompanied by an accurate translation of the relevant passages in the English language in which case, for purposes of interpretation of the Bid, the English translation shall govern.

### **Bid Price**

- The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialing, dating and re-writing.
- All duties, taxes, and other levies payable on the raw materials and components, job contract shall be included in the total price.
- Current GST filing return/ GST Clearance certificate in connection with the sale shall be shown separately.
- The rates quoted by the bidders shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- The price shall be quoted in Indian Rupees only.

### **GST Clearance**

Copies of valid GST clearance Certificate/ Current GST filing return shall be furnished by the Bidders and the originals of the above certificates shall be produced to the purchaser before placement of notification of award if asked for by the Purchaser. Govt. of India GST Act 2017 should be strictly followed.

### **EMD/Bid Security Deposit:**

All bidders are required to submit EMD/ Bid Security of not less than **2% (including GST)** of the quoted amount in shape of Demand draft/ Irrevocable BG (**Annexure-IX**) drawn in favour of Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada (Odisha) only. The bid security shall be in Indian Rupees.

**NOTE:**

Non- submission of EMD or submission of less EMD than the desired one shall result in rejection of Bid.

The bid security is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture.

Unsuccessful bidders' bid security will be discharged after signing of contract with successful bidders.

The successful Bidder's bid security will be discharged upon after signing the contract and furnishing the performance security by the Bidders.

The bid security may be forfeited if a Bidder withdraws its bid during the period of bid validity and in the case of a successful Bidder, if the Bidder fails to furnish performance security. The EMD / performance Security deposited against other Bids cannot be adjusted or considered for this Bid. No interest is payable on EMD

/ Performance Security.

**Performance Security/ Performance Guarantee**

Within 21days after the receipt of notification of award of the Contract from UGMIT, Rayagada successful Bidder shall furnish Contract Performance Guarantee to the UGMIT, Rayagada which shall be equal to **3% of Total Bid Value** and shall be in the form of a Bank Guarantee Bond from any Nationalized Bank/ Scheduled bank in the Performa given here-in- after in this document valid for period of 38 months from the date of award of Contract as specified in the document.

The proceeds of the performance guarantees shall be payable to the UGMIT, Rayagada as compensation for any loss/ penalties resulting from the SelectedBidders failure to complete its obligations under the Contract

The performance guarantee will be released by UGMIT, Rayagada and returned to the Selected Bidder after 38 months from the date of award of Contract as specified in the document.

**Purchase Preference Policy**

Under this policy the bidders are allowed to avail the purchase preference linked withattaining the stipulated local content. Detail policy is as per order no P-45021/2/2017- PP (BE-II), Ministry of Commerce & Industry, Department for promotion of Industry and Internal Trade, (Public Procurement Section), Govt. of India.

Preference to **local MSEs/ Start ups** will be given as per Government of Odisha Finance Department Order No.-27928/ Dt.16.10.2020

Preference if any will also be applicable as per Govt. of India & Govt. of Odisha guidelines.

**SUBMISSION OF BIDS**  
**Sealing and Marking of**  
**Bids**

Bid should be submitted in two Bid system containing two parts as detailed below.

**Sealed Cover-A: Technical Bid**

**Sealed Cover-B: Price Bid**

Both the sealed envelopes should then be put in one outer cover and each cover should have the following indication:

- i) Reference No. of Bid\_\_\_\_\_
- ii) Bid regarding\_\_\_\_\_
- iii) Due date & time for submission of the Bid\_\_\_\_\_

- iv) Due date & time for opening of the Bid \_\_\_\_\_  
v) Name of the Firm \_\_\_\_\_

**NOTE:**

- Bids submitted without following two Bid system procedures as mentioned above will be summarily rejected.
- Please Note that **prices should not be indicated in the Technical Bid**. The Pre-qualification document including EMD/ Performance Security as required in the Bid document should invariably be accompanied with the Technical Bid (**Cover A**). The outer envelope shall indicate the name and address of the bidders to enable the bid to be returned unopened in case it is declared "**late**".
- If the cover containing the outer envelope is not sealed and marked as required, **Purchaser** will assume no responsibility for the bid's misplacement or premature opening.
- The above procedure shall be adopted both for the Technical bid and price bid separately.
- **Telex, cable, email or facsimile bids will be rejected.**

**Deadline for Submission of Bids**

Bids must be received by the **Purchaser** at the address specified not later than the time and date specified in the Invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the **Purchaser**, the bids will be received up to the appointed time on the next working day.

The **Purchaser** may, at its discretion, extend this deadline for submission of bids by amending the bid document, in which case all previous rights and obligations of the purchasers and bidders will remain same till the extended date.

**Modification and Withdrawal of Bids**

No Modification and Withdrawal of Bids is allowed between the interval of time of submission and the last date and time of the bids.

No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidders on the bid form. Withdrawal of a bid during this interval may result in the bidder's forfeiture of its bid security/EMD.

**BID OPENING**

- The **Purchaser** will open all bids, in the presence of bidder's representatives who choose to attend at **11.00 AM on dated 24.08.2023** at the Office of the Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada (Odisha)
- The bidder's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of bid opening being declared a holiday for the **Purchaser**, the bids shall be opened at the appointed time and location on the next working day.
- No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the bidders.

### Clarification of Bids

If any clarification about the bidding process is sought by the **Bidder**, the same may be communicated to the **Purchaser** by e-mail ([ugmit1979@yahoo.in](mailto:ugmit1979@yahoo.in)) within **14 days** from the date of publication of tender after which no further communication will be entertained. The queries should necessarily be submitted in the following format:

Section/Page No.	Content of RFP requiring clarifications	Change/Clarification requested	Remarks

During evaluation of bids, the **Purchaser** may, at its discretion, ask the bidders for clarification of its bid. The request for clarification and the response shall be in writing. Unless the purchaser asks for change in price due to the clarifications sought the bidders is not permitted to alter the price furnished.

#### Responses to Queries

- a. The queries submitted by the Bidders will be responded through virtual meeting.
- b. The purpose of Pre-Bid discussion is to provide the Bidders with information regarding the BID, project requirements, and opportunity to seek clarification regarding any aspect of the BID and the project. However, UGMIT, Rayagada, reserves the right to hold or to reschedule the Pre-Bid meeting.
- c. UGMIT, Rayagada shall not be responsible for ensuring that the Bidder's queries have been received by them. Any requests for clarifications received after Pre-Bid meeting will not be entertained.
- d. However, UGMIT, Rayagada makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does it undertake to answer all the queries that have been submitted by the Bidders.

#### Preliminary Examination

- The **Purchaser** will examine the bids to determine whether they are complete,
- Whether all the documents supporting to EMD exemption and Start ups have been provided as per norms of both Govt. of India & Govt. of Odisha.
- Whether any computational errors have been made
- Whether required sureties have been furnished  
Whether the document have been properly signed
- Whether the bids are generally in order.
- Bids from Representatives, without proper authorization from the manufacturer shall be treated as non-responsive.
- If there is a discrepancy between words and figures, the amount in words will prevail.
- Whether bids received along with certified copies of GST clearance/ Current GST filing return valid up to preceding year issued by competent authority or declaration as per **Annexure-V**.
- The **Purchaser** may waive any minor informality or non-conformity or irregularity in a bid which does not constitute a material deviation, provided such a waiver does not prejudice or affect the relative ranking of any bidders.

- The purchaser's determination of bids responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- A bid determined as not substantially responsive will be rejected by the **Purchaser** and may not subsequently be made responsive by the bidders by correction of nonconformity.

#### **Acceptance of the Bid**

- Bidders submitting bids would be considered who have considered and accepted all terms and conditions. No enquiries, verbal or written, shall be entertained in respect of acceptance or rejection of the bid.
- Genuine equipment and instrument etc. should be supplied. Bidders should indicate the **source of supply / Origin of Manufacturing** i.e. name and address of the manufacturers along with origin of manufacture of each items/equipments/machineries from whom the items are to be sourced.
- Supply of equipment means – Installation and Commissioning, Demonstration as well as Training at site/ Ex-Factory. **No separate charges will be paid on this account.**

### **Rejection of the Bid**

- The Bid document shall be out-rightly rejected under following stipulation and no correspondence will be entertained whatsoever.
- If the Bidders has not furnished the **EMD/ BID Security (Annexure-IX)** or **EMD exemption certificate** from competent authority.
- If the Bidders has not submitted the Price as per the prescribed **Annexure-I**.
- If the bid is not supplemented with breakup of standard accessories / Optional accessories & cost of AMC separately for three years after completion of warranty period.
- Photo copy of the up-to-date valid manufacturing license/ import license (if it is imported) /dealership certificate/Distributor certificate
- If the bidders, whether manufacturer or authorized distributor/ dealer have not supplied the required quantity for qualification as per the eligibility criteria and not submitted the performance statement at **Annexure-IV**
- If the quoted product of the bidders not confirms to technical specification and standard of workmanship required by the Purchaser.
- If the bidder has not furnished technical details of the Furniture, equipments and machinery as per **Annexure-XI**
- If the bidder has not furnished detailed mandatory drawings, Foundation drawings & schedule of supply of items, if required.
- If the bidders has not agreed to give the required performance security.
- If Bidder is not willing to provide operational Training for Machineries to one Official of each consignee at Suppliers Plant or Consignee site **at least for 7 days whichever is suitable to Purchaser**

### **Purchaser's Right to Accept any Bid and to Reject any Bid**

The Purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all the bids without assigning any reason thereof at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or Bidders on the grounds of such action of the purchaser. In case no bidder qualifies as per qualifying criteria and standards, purchaser may at his discretion relax qualification criteria for award of contract.

### **Evaluation and Comparison of Bids**

The comparison shall be of FOR destination price basis including the price of all costs wherever applicable as well as duties and taxes (**but excluding GST**) paid or payable on Machineries, instruments & equipment incorporated or to be incorporated in the items including the warrantee/guarantee period from the date of installation.

The Purchaser's evaluation of a bid will take into account, in addition to the bid price and the price of incidental services.

The purpose of bid evaluation is to determine substantially responsive bid with the lowest evaluated cost, but not necessarily the lowest submitted price, which should be recommended for award.

Evaluation of bids should be made strictly in terms of the provisions in the bid document to ensure compliance with the commercial and technical aspects.

The past performance of the suppliers will be taken into account while evaluating the bids.

Cost of the inland transportation, insurance and other costs within the Purchaser's Country incidental to delivery of the goods to their final destination;



Delivery schedule offered in the bid;  
Deviations in payment schedule from that specified in the General Terms & Conditions of Contract;  
The cost of components, spare parts and service.  
The availability in the Purchaser's country of spare parts and after-sales services for the goods offered in the bid;

## **6 Supply Conditions**

### **Delivery of Goods**

The delivery of goods shall be made by the supplier to the Consignee in accordance to the order placed as shall be detailed in the Schedule of requirements & technical specifications.

### **Instruments, Equipment & Machineries Demonstration cum Inspection**

Purchaser reserves the right to ask for demonstration cum inspection of the instruments & equipment where ever applicable.

### **Inspection/Test/Training**

The supplier shall get each equipment inspected in manufacturer's works and submit a test certificate (New & Unused) and also guarantee/warranty certificate that the equipment confirms to laid down specifications.

The supplier shall invite the purchaser for pre-dispatch inspection. The Purchaser or his representative shall have the right to inspect/ examine/ test the goods in conformity with the contract awarded/supply order during the production or before dispatch from the manufacturer's premises. Such inspection and clearance will not prejudice the right of the consignee to inspect and test the equipment on receipt at destination.

The inspection/examination/ test may be conducted in the premises of the Supplier or at the goods final destination or at the premises of the consignee, as will be decided by the Purchaser.

The purchaser's right to inspect/ examine/test & where necessary to reject the instruments & equipment after the arrival of the goods at the final destination, shall in no way be limited or waived by the reason of the goods having been inspected and tested by the manufacturer previously. In case of rejection of the goods at the final destination after inspection and test as stipulated above and in case any inspected/ tested goods fail to confirm to the specification/ working condition, the purchaser may reject them and the supplier shall replace/ repair the same free of cost.

### **Warranty Period (comprehensive)**

The Bidders must quote for a minimum period of 36 (Thirty Six) months of comprehensive warranty from the date of completion of the satisfactory commissioning as per (**Annexure-II**). This also includes all accessories related to instruments & equipment quoted for.

### **Payment Terms**

No advance payment will be made by the Purchaser to the supplier for performance of the contract. 100% of the contract price shall be paid within 15 (fifteen) days after receipt of stock entry certificate from the Consignee, after satisfactory supply, installation, demonstration, Commissioning & training of the goods within due date of delivery.

### **Transportation**

The Supplier shall be required to meet all transport and storage expenses until commissioning of the instrument(s) / equipment covered in the contract.

### **Taxes and Duties**

The Supplier shall be entirely responsible for payment of all Taxes, Duties etc. incurred until delivery of the contract goods to the Consignee subject to recovery afterwards in the bill as claimed in the Bid offer.

GST as applicable is payable, to the suppliers of the State of Odisha if claimed in the Bid offer.

### **Incidental Services**

The Supplier shall be required to provide any or all of the following services: (The cost should be included in the quoted Price)

- Furnishing of detailed literature/pamphlets/ circuit diagram/ operation & maintenance manual / drawings (as applicable) for each appropriate unit of supplied goods.
- Furnishing of tools required for assembly and / or maintenance of the supplied goods.
- Performance or supervision of on-site assembly and the supplied goods.
- Performance or supervision or maintenance and/ or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty/ guarantee obligations under the contract.
- **Training of the Purchaser's personnel at the Supplier's plant and / or on site, in assembly, start up, operation, maintenance and/ or repair of the supplied goods is Mandatory** .A maintenance contract for the goods supplied, if required by the user beyond the warranty period shall be on mutually agreed upon terms between the user and supplier. The cost of such maintenance contract shall not be included in the Bid cost.

### **Period of Validity of Bids**

- The bid rates should be kept open/ valid for a period of **90** days from the date the Bids are opened.
- A bid valid for a shorter period i.e. less than **90** days shall be rejected, as non-responsive.
- In absence of any indication of the date of validity in the bid, it will be presumed that the offer will remain valid for the minimum period i.e. **90** days as prescribed above.
- In exceptional circumstances the purchaser may solicit the bidders consent for extension of the period of validity. If agreed upon, the bid security so deposited shall also be suitably extended.

### **Commissioning Period**

Maximum commissioning period is **15 days** from the date of supply.

### **Standards**

The Goods supplied under this Contract shall New & Unused conforms to the standards mentioned in the Technical Specifications and when no standard is mentioned, the Goods shall conform to the standards prescribed by the Bureau of Indian Standard (BIS) or equivalent wherever necessary.

### **Award Criteria**

- The Purchaser will award the Contract to the successful Bidders whose bid has been determined as the lowest evaluated bid, provided further that the Bidders is determined to be qualified to perform the Contract satisfactorily.
- Quality, durability and adaptability of the instrument(s) / equipment(s) offered suiting to the purpose shall continue to be the overriding factor for selecting the same and determining the lowest evaluated bid. Quantity of requirement may be increased or decreased.
- The purchaser shall award the contract within the period of validity of bids to the Bidders who meets the Bid condition in all aspects has the necessary technical and production capabilities and financial resources whose Bid is substantially responsive to the bid conditions and has offered the lowest evaluated cost.

### **Penalty against late delivery**

If the delivery is not effected in the due date i.e 3 (Three) months from the date of issue of Purchase Order the purchaser will have the right to impose penalty as under.

- a) First extension of 1(one) month or part thereof -@ 2% of the value of balance items;
- b) For second extension for an additional one month-@ 3 % of the value of balance items
- c) If the bidder fails to execute the order within the extended time schedule as above the firm will be black-listed for two years from the date of issue of purchase order.

### **Penalty against Non Supply**

In case of non supply of Stores within the due date i.e. within the date of delivery, the Principal, Utkal Gourav Madhusudan Institute of Technology (Odisha) will have the right to impose penalty, as deemed fit, to resort to risk purchase in full or part thereof at his/her discretion, his/her decision shall be final and binding and the cost shall be recovered for the defaulted party.

### **Demonstration**

The bidders may be required to demonstrate the quoted instrument(s) & equipment(s) during the technical evaluation, if required, at the nearest point of installation failing which their bids/offer shall be rejected.

### **Force majeure**

The Supplier shall not be liable for forfeiture of its performance security, liquidation damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force majeure. For purposes of this Clause "Force majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the **Purchaser** either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

If a Force Majeure situation arises, the Supplier shall promptly notify the **Purchaser** in writing of such conditions and the cause thereof. Unless otherwise directed by the **Purchaser** in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

### **Rejected items**

No payment shall be made for rejected supplied items. Rejected items must be removed by the bidders within two weeks of the date of rejection at their own cost and replace immediately. In case these are not removed these will be auctioned by the purchaser (at the risk and responsibility of the suppliers) without any further notice.

### **Annual Maintenance Contract**

The Cost of Annual maintenance contract for next 3 years after warranty period shall be submitted as per the **Annexure at I (b)**. The after sales service during and after the warranty / guarantee period should be available from companies own engineers.

## **7.0 Governing Language**

The contract shall be written in English language. All correspondence and document pertaining to the Contract which are exchanged by the parties shall be written in the same language

## **8.0 Applicable Law**

The Contract shall be interpreted in accordance with the laws of the Union of India.

### **Notification of Award**

- Prior to the expiration of the period of validity of the Bid, the Purchaser will notify the successful Bidders in writing by registered letter or by Fax, to be confirmed in writing by registered letter or by speed post, that his bid has been accepted.
- The notification of award will constitute the formation of the Contract.
- Upon the successful Bidder's furnishing of the performance security, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security.

## **10.0 Signing of Contract**

At the same time as the Purchaser notifies the successful Bidders that his bid has been accepted, the Purchaser will send the Bidders the Contract Form provided in the bidding document (**Annexure-X**), incorporating all terms and conditions of the **agreements** between the parties within thirty (30) days of receipt of the Contract Form, the successful Bidders shall sign and date the contract and return it to the Purchaser

### **Resolution of Disputes by Arbitration**

The Purchaser and the Supplier should try to resolve the disputes, if any, arising out of the contract, amicably between them, failing which the same shall be referred to the Commissioner Cum Secretary to Government, Skill Development & Technical Education Department, Government of Odisha, Bhubaneswar for adjudication as the sole Arbitrator under the provisions of the Arbitration and Conciliation Act, 1996 whose decision will be final and binding on all the parties to the dispute.

## **12.0 Jurisdiction of the Court**

The Purchaser and the Supplier shall agree that the competent Court at Cuttack shall have the jurisdiction to try and decide anything between the parties and they may approach the Competent Court at Cuttack if required at anytime.

Sd/-  
**Principal**  
**UGMIT, Rayagada**

**SECTION - III**

**FORMS AND ANNEXURES**

**ANNEXURE-I (a)**  
**PRICE SCHEDULE (ITEM WISE)**

**BID REFERENCE NO- \_\_\_\_\_ / UGMIT, RAYAGADA/ TENDER /2023-24**

Package No	Sl. No.	Item Description	Unit price	GST and other taxes payable if contract is awarded	Total price	Remarks
1	2	3	4	5	6	7

**Total bid price (in figures): Rs: \_\_\_\_\_**  
**Total Bid price (in words): Rupees .....**

Signature of Bidder  
Name  
Business address

**ANNEXURE-I (b)**

PRICE SCHEDULE (ITEM WISE) - B  
 PRICE SCHEDULE FOR ANNUAL MAINTANANCE CONTRACT AFTER COMPLETION OF  
 WARRANTY PERIOD.

Sl.No.	Brief description of Goods	Quantity in nos.	MAINTANANCE COST			Total annual Maintenance Contract cost 3 years i.e. (4a+4b+4c)
			1 <sup>st</sup> yr.	2 <sup>nd</sup> yr.	3 <sup>rd</sup> yr.	
1	2	3	4			5
			(a)	(b)	(c)	

**\*\* After Completion of warranty period**

**Note :-**

1. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.
2. The cost of Annual Maintenance Contract (AMC) which includes preventive maintenance including testing & calibration as per technical/ service/ operational manual, labour and spares, after satisfactory completion of warranty period may be quoted for next 3 years on yearly basis for complete equipment and turnkey (if any).
3. The cost of AMC may be quoted along with taxes applicable on the date of bid opening. The taxes to be paid extra, to be specifically stated. In absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
4. Cost of AMC will not be added for Ranking/Evaluation purpose. However, the cost of AMC for lowest evaluated bidder is subject to negotiation.
5. The payment of AMC will be made as per payment terms of the bid document.
6. The uptime warranty and down time penalty shall be as per the bid document.
7. All software update should be provided free of cost during AMC period.
8. The stipulations in Technical Specification will supersede above provisions.
9. The supplier shall keep sufficient stock of sparse require during Annual comprehensive Maintenance Contract period. In case the spares are required to be imported, it would be the responsibility of the supplier to import and get them custom cleared and pay all necessary duties.

Place:

Date:

Signature of Bidder  
 Business Address.  
 Seal of the Bidder.



**WARRANTY MAINTENANCE CONTRACT AGREEMENT.**

This Agreement made the.....day of.....,2023 between the Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT), Rayagada, (Odisha) (herein after "the Purchaser") of the one part and M/s..... (here in after called "the Supplier") of the other part:

WHEREAS the Purchaser invited bids for certain Goods & ancillary services viz, supply and commissioning of the instruments & equipment including Comprehensive Warranty Maintenance Services and has accepted a bid by the Supplier for the instruments & equipment specified below at the Consignee site including Comprehensive Warranty Maintenance Services for a period of 36 (Thirty Six) months from the date of installation & commissioning of the instruments & equipment as per award of Contract No. dated

**Name of the Equipment & machineries**

**Qty**

(To be filled in as per details of goods in the award of Contract)

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. Maintenance Services shall consist of Preventive and Corrective maintenance of equipment specified above & will include repair and replacement of parts free of cost.
2. Preventive maintenance, monthly once, which includes:  
Check-up to ensure that device connection is proper; cabling is at proper condition etc.  
Cleaning of the above instruments & equipments and checking the System Performance.
3. The Supplier is to furnish the tentative schedule of the preventive maintenance of Warranty Maintenance Contract (WMC) to be carried out.
4. The parts replaced must be new parts or equivalent in performance to new parts.
5. The Supplier will also provide the same maintenance service in case of the movement of equipment from the place of original installation to a different place or location, if the equipment is shifted by the Purchaser to another place or location at the cost and risk of the purchaser.
6. Any complaint informed through telephone must be acknowledged with a Complaint No. by the Supplier which will be noted by Consignee. All further contact with the Supplier on such complaint will be initiated through that Complaint No. Once rectification done, that No. will be cancelled by both parties. A register is to be maintained by the Supplier where complaints are to be noted along with Complaint No.
7. The maintenance shall normally be done at the earliest.

8. The Service Engineer of the Supplier will be allowed to handle the respective plant & machineries only in presence of the officer in charge at the Consignee site.
9. The Supplier should ensure that maintenance job is not hampered/ delayed due to paucity of spares/inadequate man power etc.
10. The Supplier should submit the services call report, to the Consignee for each and every service call without fail.
11. In case of delay/ lack of communication, down time will be calculated as mentioned below in WMC Clause.

**COMPREHENSIVE WARRANTY MAINTENANCE CONTRACT (CWMC) CLAUSE**

Normal response time for repair is 72 hours from the actual time of reporting of the problem to the Supplier.

	<b>Period</b>	<b>Extension of WMC period</b>
Response Time	Above 24 hrs & below 48 hrs	2 days for delay of each day.
	Above 48 hrs & below 96 hrs	One Week for each day of delay
	Above 96 hrs	Two weeks for each day of delay
Down time	Above 24 hrs & below 48 hrs	Two days for each day of delay
	Above 48 hrs & below 96 hrs	One Week for each day of delay
	Above 96 hrs	Two weeks for each day of delay.

13. The Supplier evaluation data format for the WMC of Consignee systems may be filled up for necessary action.
14. All formats after filled up should be signed at the end of each page by the Supplier.
15. After completion of the work/repair/maintenance, the Purchaser shall issue a certificate of completion to the supplier to that effect.

Signature

Signature

For the Purchaser

For the Supplier

Name:

Name:

Designation:

Designation:

Address:

Address:

Telephone No:

Telephone No:

**BID REFERENCE NO- \_\_\_\_\_ / UGMIT, RAYAGADA / TENDER /2023-24**  
**Annexure- III**

**MANUFACTURES' AUTHORISATION FORM**

**No. \_\_\_\_\_ / Date \_\_\_\_\_ /**

To

The Principal, Utkal Gourav Madhusudan Institute of Technology (UGMIT),  
Rayagada (Odisha)

Bid No. \_\_\_\_\_

Dear Sir,

We \_\_\_\_\_ who are established and reputable manufacturers of \_\_\_\_\_ having factories at \_\_\_\_\_ (Address of Factory) do there by authorize M/s. \_\_\_\_\_ (Name and address of Agent) to submit a bid and sign the contract with you against the above bid.

\* No company or firm or individual other than M/s. \_\_\_\_\_ are authorized to bid and conclude the contract in regard to this business against this specific IFB.

We hereby extend our full guaranty and warranty as per general conditions of contract for the goods and services offered by the above firm against this bid.

Yours faithfully,

(Signature for and on behalf of Manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person, competent and having the power of attorney to bind the manufacturer. It should be included by the Bidders in its bid.

- 
- This Para should be deleted for simple items where manufacturers sell the product through different stockiest.
  - The Supplier/Managing Director of the Company (if the supplier is a Company) or the Power of Attorney Holder having specific power to sign the contract can only sign the contract/execute the agreement.

**BID REFERENCE NO- \_\_\_\_\_ / UGMIT, RAYAGADA / TENDER /2023-24**

**ANNEXURE-IV**

**PERFORMANCE STATEMENT**

**(In proof of eligibility of bidders for the period of last THREE years)**

Documentary evidence viz. copy of award letter, certificate of performance in support of satisfactory execution of works

<b>Order placed by the organization with address</b>	<b>Order No &amp; date</b>	<b>Items /Quantity</b>	<b>Date of completion of delivery</b>	<b>Remarks indicating reasons for late delivery, if any</b>	<b>Contact person of the organization and contact number.</b>

Signature of bidders

**BID FORM**

**DATE:**

To

.....  
.....

**(Complete address of the purchaser).**

Ref: - Your Bid Enquiry document No. \_\_\_\_\_ dated \_\_\_\_\_ we, the undersigned have examined the above mentioned Tender Enquiry document, including amendment/corrigendum No. \_\_\_\_\_, dated \_\_\_\_\_ (if any), the receipt of which is hereby confirmed. If our bid is accepted, we undertake to supply the instruments & equipment and perform the services as mentioned, in accordance with the delivery schedule specified in the Schedule of Requirements. We further confirm that, if our bid is accepted, we shall provide you with a performance security of required amount in an acceptable form as per Bid Document. We further confirm that, until a formal contract is executed, this bid read with your written acceptance thereof within the validity period shall constitute a binding contract between us. We further understand that you are not bound to accept the lowest or any bid you may receive against your above-referred bid enquiry.

I/ We declare that we possess the valid manufacturing license and/ import license issued by the Competent Authority. I/ We furnish the particulars in this regard in enclosure to this declaration.

I/ We do hereby declare that I/ We have not been de-recognized/ black listed/ convicted by any State Government/ Union Territories/ Government of India for supply of substandard quality items/ part supply/non-supply.

I/ We agree that the Bid Inviting Authority can forfeit the Earnest Money Deposit and or Security Deposit and blacklist me/ us for a period of 2 (two) years if, any information furnished by us proved to be false at the time of inspection/ verification and not complying with the Bid terms & conditions.

I/ We do hereby declare that I/We will supply the machineries / testing equipment and other items as per the terms, conditions & specifications of the bid document.

I/ We do hereby declare that am/ are not supplying/ quoting the same item at the lower rate quoted in the bid to any Government organization or any other institute.

We confirm that we fully agree to the terms and conditions specified in above mentioned Tender Enquiry document, including amendment/ corrigendum if any.

**(Signature with date)**

**(Name and designation)**

**Duly authorized to sign bid for and on behalf of**

.....  
.....

**Details of the bidders**

Bid Reference No.

Date of opening

Name and address of the Bidder:

- 01 Name of the bidder
  - a) Full postal address
  - b) Full address of the premises
  - c) Telegraphic address
  - d) Telephone number
  - e) Fax Number
  - f) Email:
  - g) PAN No
  - h) TIN No
  - i) GST Registration No.
- 05 Total annual turn-over (value in Rupees)
- 06 Quality control arrangement details
- 07 Test certificate held
  - a) Type test
  - b) BIS/ISO certification
  - c) Any other
- 08 Details of staff
  - a) Technical
  - b) Skilled
  - c) Unskilled
- 09 Branch Office/ Contact Person/ Liaisoning Office in Odisha.
  - a) Address
  - b) Telephone No.
  - c) e-mail,
  - d) Fax of the

Signature and seal of the Bidder

**BID REFERENCE NO- \_\_\_\_\_ / UGMIT, RAYAGADA / TENDER /2023-24**

**CHECKLIST**

**ANNEXURE-VII**

<b>Sl No</b>	<b>DESCRIPTION</b>	<b>Cover</b>	<b>Page No.</b>
1	EMD in the form of DD/BG( <b>Annexure-IX</b> ) shall be kept in an envelope	A	Yes/ No
2	Duly attested photocopy of manufacturing License/ Dealership/ Distributorship Certificates for the product duly approved by the Licensing authority for each and every product quoted	A	Yes/ No
3	Duly attested photocopy of Import License, if imported and Origin of Manufacturing mentioned (if manufactured outside India)	A	Yes/ No
4	Authorization letter nominating a responsible person/ liaisoning agent of the bidder to transact the business with the Bid Inviting Authority	A	Yes/ No
5	Performance Report for 3years ( <b>Annexure-IV</b> )	A	Yes/ No
6	Manufacturers authorization ( <b>Annexure-III</b> )	A	Yes/ No
8	<b>Bid form (Annexure -V)</b>	A	Yes/ No
9	Details of the Bidders ( <b>Annexure -VI</b> )	A	Yes/ No
10	BIS certificate if any or equivalent. (wherever applicable)	A	Yes/ No
11	The Bid document signed by the bidder in all pages with office seal.	A	Yes/ No
12	GST clearance certificate	A	Yes/ No
13	Price Schedule- <b>Annexure-I</b>	B	Yes/ No
14	Detailed Lay out, mandatory drawings and Foundation drawings etc.	A	Yes/ No
15	Schedule of supply of items with detail Specification including Demonstration, Installation, commissioning & Training.	A	Yes/ No
16	Technical details of the Machineries &Equipments to be supplied by the bidder ( <b>Annexure-XII</b> ).	A	Yes/ No

**BID REFERENCE NO- \_\_\_\_\_ / UGMIT, RAYAGADA / TENDER /2023-24**

**ANNEXURE-VIII**

**PERFORMANCE SECURITY**

Notification of Award No \_\_\_\_\_

Bank Guarantee No.....

To

The Principal,  
Utkal Gourav Madhusudan Institute of Technology, Rayagada-765 001 (Odisha)

**Whereas**..... (name and address of the supplier (hereinafter called "the supplier") has undertaken in pursuance of contract no dated ..... to Supply .....(description of goods and service)(hereinafter called" the contract") issued by you (the purchaser) in favour of the supplier.

AND WHEREAS we have agreed to give the supplier been stipulated by you in the said contract that the supplier shall furnish you with a Bank Guarantee by a Nationalized /commercial Bank recognized by you for the sum specified therein as security for compliance with the supplier's performance obligations in accordance with the contract.

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE, we hereby affirm that we are guarantors and responsible to you on behalf of the supplier, up to a sum of Rs.....(Rupees ..... ) and we undertake to pay you, upon your first written demand declaring the supplier to the in default under the contract and without cavil or argument, any sum or sums within the limits of guarantee amount, as aforesaid, without your needing to prove or to show grounds or reasons for your demand of the sum specified therein

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of such change, addition or modification.

This guarantee is valid until..... Day of ..... month of 20.....

Our.....branch at.....(Name & Address of the branch) is liable to pay the guarantee amount depending on the filing of claim and any part thereof under this Bank Guarantee only if you serve upon us at our.....branch a written claim or demand and received by us at our ..... branch on or before Dt..... Otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

.....  
(Signature of the authorized officer of the Bank)

.....  
(Name and Designation of the officer)

Seal, Name & address of the Bank address of the Branch



**ANNEXURE-IX**

**EMD/BID SECURITY**

**FORM**

Whereas.....<sup>1</sup> (here in after called "the Bidder") has submitted their bid dated ..... (date of submission of bid) for the supply of ..... (Name and/or description of the goods)(Hereinafter called "the Bid")

Against the purchaser's bid enquiry No.....

KNOW ALL PEOPLE by these presents that WE.....of..... having our registered office at.....are bound unto..... (Name of Purchaser)(herein after called "the Purchaser")in the sum of \_\_\_\_\_ for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Seal of the said Bank this \_\_\_\_ day \_\_\_\_\_ of \_\_\_\_\_ 20\_\_\_\_\_.

THE CONDITIONS of this obligation are:

1. If the Bidder

(a) Withdraws or amends, impairs or derogates from the Bid in any respect with in the period of bid validity of this Bid.

(b) Does not accept the correction of errors in accordance with the ITB; or

2. If the Bidder, having been notified of the acceptance of his bid by the Purchaser during the period of bid validity:

(a) Fails or refuses to execute the Contract Form or

(b) Fails or refuses to furnish the performance security, in accordance with the Instruction to Bidder;

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

This guarantee will remain in force up to and including forty five (45) days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

Our.....branch at ..... (Name &Address of the branch)is liable to pay the guaranteed amount depending on the filing of claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our.....branch on or before Dt..... otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

(Signature of the authorized officer of the Bank)

.....

.....

(Name and Designation of the officer) Seal, Name & address of the Bank address of the Branch

**Note: The bank guarantee [submitted by Indian Bidder] should be executed on stamp paper in accordance with stamp Act. The stamp paper should be in the name of executing bank.**

**BID REFERENCE NO- \_\_\_\_\_ / UGMIT, RAYAGADA/ TENDER /2023-24**

**ANNEXURE-X**

**CONTRACT FORM**

**THIS AGREEMENT** made the .....day of.....,20... Between ..... (*Name of purchaser*) of .....(*Country of Purchaser*) (hereinafter called "the Purchaser") of the one part and ..... (*Name of Supplier*) of.....(*City and Country of Supplier*) (hereinafter called "the Supplier") of the other part:

**WHEREAS** the Purchaser is desirous that certain Goods and ancillary services viz.,..... (*Brief Description of Goods and Services*) and has accepted a bid by the Supplier for the supply of those goods and services in the sum of..... (*Contract Price in Words and Figures*)(hereinafter called "the Contract Price").

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. That the time shall be the essence of the contract and the supplier shall supply the goods in the schedule completely so as to make delivery.....(place) on or before the date .....failure to do which will entitle the Governor to rescind the contract immediately.
2. That the goods shall be of the specifications and price mentioned against each. Any variation on inspection will entitle the Governor to refuse the consignments either in whole or in part, as the case may be, the whole, if the part renders it useless.
3. That the goods shall be inspected at.....(place)in the presence of the officers of both parties duly authorized in that behalf of a day fixed in a notice by either of parties, provided such day is not postponed for more than a period of two months after the date given in the notice. Default by the supplier shall disentitle him to raise any objection subsequently to the result of inspection made by the Governor in his absence and claim any compensation on that account.
4. That the supplier shall guarantee durability of the goods for a period of..... from the date of completion of supplies and installation in the case of machineries and any damage, done to the goods in the usual course of use or any deficiency, detected in them subsequent to such completions installation and during the period aforesaid shall be made good to render due service at the cost of the supplier within a period of two months from the date of receipt of the notice in that behalf and no decision shall be taken by the supplier or any person on his behalf as to the defects or deficiency without notice to the Governor failure to do so shall be deemed that supplier has no intention to discharge the obligation and there upon the amount of security, deposited separately or withhold from his bill, shall ,stand forfeited to the Governor. The supply of goods other than machineries shall be deemed to be complete only after final approval by the officer duly authorized on inspection whose decision shall be final and in case of machineries exactly in the same manner and installation which would include test working for 7(seven)days.

- 5 The Goods shall be duly packed and insured by the supplier for transit and be dispatched at the risk of the carriers and the Governor shall not responsible for any loss or damage during the transit or any time prior to inspection and approval.
- 6 That the price of goods shall be paid on completion of supplies and installation.
- 7 That any damage or deficiency if not removed during stipulated period by the supplier may be removed by the Governor at his cost to be reimbursed by the Supplier. Any amount payable to the Governor hereunder shall be recovered as public demand under the Orissa Public Demand Recovery Act, 1963 and shall bear 6% Interest per annum till certificate for recovery is filed.
- 8 That the supplier shall deposit Rs 3% of contract value towards performance security at the time of acceptance of contract for due performance of the covenants hereof and such money shall be forfeited to the Governor in case of breach of all or any of the covenants.
- 9 That any dispute arising here under shall be resolved in following manner  
The Purchaser and the Supplier should try to resolve the disputes, if any, arising out of the contract, amicably between them, failing which the same shall be referred to the Commissioner Cum Secretary to Government, Employment, Technical Education & Training Department, Government of Odisha, Bhubaneswar for adjudication as the sole Arbitrator under the provisions of the Arbitration and Conciliation Act, 1996 whose decision will be final and binding on all the parties to the dispute.
- 10 That Sri.....is duly authorized in the order No.....dated..... by the Governor and Sri.....on behalf of the company to execute the deed.
- 11 The cause of action here under shall always be deemed to raise at Cuttack.
12. That stamp duty shall be borne by supplier.

Brief particulars of the goods and services which shall be supplied / provided by the Supplier are as under:

SL. NO	BRIEF DESCRIPTION OF GOODS & SERVICES	QUANTITY TO BE SUPPLIED	UNIT PRICE	TOTAL PRICE	DELIVERY TERMS

**TOTAL VALUE:**

**DELIVERY SCHEDULE:**

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

Signed, Sealed and Delivered by the said..... (For the Purchaser)

in the presence of:.....

Signed, Sealed and Delivered by the Said.....(For the Supplier)

In the presence of:.....



**SECTION- IV**

**SCHEDULE OF REQUIREMENTS**

**AND TECHNICAL SPECIFICATIONS**

**ABSTRACT OF PACKAGES FOR REQUIRMENT OF  
PNEUMATIC & HYDRAULIC KIT & ACCESSORIES**

<b>MHRD FUND</b>		
<b>Sl. No</b>	<b>Package No.</b>	<b>Name of the Package</b>
<b>1</b>	<b>Package - 1</b>	<b>PNEUMATIC, HYDRAULIC TRAINER KIT &amp; ACCESSORIES (SL NO 01 to 13)</b>

- **Quantity may vary (increase or decrease) depending on the final requirement and availability of funds.**

**TENDER SPECIFICATION FOR MACHINERIES AND EQUIPMENT**  
**MECHANICAL ENGINEERING DEPARTMENT - UGMIT, RAYAGADA**

SI No	Description of Item	Technical Specification	Qty
1.	<b>Sensor Training Kit</b>	a) Mounting Plate b) Power distribution box - 24V DC, 4A c) Counter Box- 10-30VDC / 0.05A d) Indication Box - 24V DC e) Material Box f) Inductive Sensor (10-30VDC,PNP,NO,5mm (range)) g) Capacitive sensor - 10-30V DC, PNP,NO, 2-8 mm range)h) Magnetic sensor - 10-60V DC , PNP,NO, 60 mm range) i) Ultrasonic sensor - 20-30 V, PNP , NO, 80-300mm ( range) j) Connecting wires k) Motor with control unit - 24V DC, 1A l) Instruction manual for students explaining application of Sensors	<b>01</b>

2.	<b>Pneumatic Control Training Kit</b>	<p>The system will consist of an extruded aluminium panel with 8.5mm slots on both sides, which will allow two groups of students to work at the same time on either side of the panel. The pneumatic and electropneumatic components with which the students will work will be fitted on the panel.</p> <p>All of the components must be industrial. Each component must be mounted on a stainless steel plate, which will include holding clips to be able to insert the components in the work panel. The stainless steel plates will bear a metal label identifying the component in question, including its reference number and ISO symbols.</p> <p>All of the components will include silencers and one-touch fittings for 4mm tubing. The electric and/or electropneumatic components will include all of the necessary cables with instant connections for 2mm-diameter power jacks.</p> <p>All of the pneumatic components must be lubricated, which must last throughout their service life without the need for lubricators.</p> <p><b>SYSTEM COMPONENT SPECIFICATIONS</b></p> <p><b>Rolling table with twin-post – Quantity:01.</b></p> <ul style="list-style-type: none"> <li>- The system will consist of an extruded aluminium panel with 8.5mm slots to fix the components.</li> <li>- External dimensions: 1150x760x25 mm.</li> <li>- The entire rolling frame may be disassembled for transportation.</li> <li>- It will include a post formed top for horizontal work, 1200 x 800 mm.</li> <li>- The lower section will feature a 1200x600 mm metal shelf containing the component storage drawer block, the silent compressor, etc...</li> <li>- Total dimensions: 1700x1200x800 mm.</li> <li>- It will be designed for electrical power supply and compressed air connections.</li> <li>- 4-wheel support, with brake and high loading output.</li> </ul> <p><b>Storage drawer block for rolling table with lock – Quantity: 1.</b></p> <ul style="list-style-type: none"> <li>- Compact 4-drawer block with slide guides to house the trays of components.</li> <li>- Post formed material with ergonomically-designed pull devices.</li> <li>- External dimensions: 500x460x640 mm.</li> <li>- Lockable with key.</li> </ul> <p><b>Air cleaning unit with 3/2 distribution valve – Quantity: 1.</b></p> <ul style="list-style-type: none"> <li>- 5 um filtering.</li> <li>- It will include a 3/2 discharge valve with silencer for connection and disconnection of the rest of the circuit.</li> <li>- Possibility of vertical and horizontal positioning</li> </ul> <p><b>Distribution block – Quantity: 1.</b></p> <ul style="list-style-type: none"> <li>- It will include 8-outlet distribution block, one Couch fittings and non-return system.</li> <li>- Direct coupling to the air cleaning unit.</li> </ul> <p><b>Double 3/2 NC valve, operated by a push button – Quantity: 2.</b></p>	01
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- It will include two 3/2 port grade level push-buttons with red and Black colour action. Spring-return.

**FC 3/2 NC valve, operated by Roller lever – Quantity: 5.**

- Mechanical Roller action.

**3/2 NC switch-operated double valve – Quantity: 1.**

- It will include 3/2 port valve with locking system.

**3/2 NC/NO, air operated single valve – Quantity: 1.**

- It will include a 3/2 valve, which the user can convert from NO to NC, as required.

- Spring-return. Manually action facility.

**3/2 NC convertible valve – Quantity: 1.**

- It will include a Basic timer, convertible from NC to NO.

- Timing range, 0 to 5s.

**Air operated 5/2 single valve – Quantity: 1.**

- Spring-return pneumatic pilot valve.

- Manual operation facility.

**Air operated 5/2 double valve – Quantity: 2.**

- Double piloting with memory function.

- Manual operation facility.

**Double “OR” valve – Quantity: 1.**

- It will include double circuit selector with logic function “OR”.

**Double “AND” valve – Quantity: 1.**

- It will include double simultaneous valve with logic function “AND”.

**Single direction speed controller (double) – Quantity: 2.**

- It will include two single direction speed controllers, operated manually.

**Quick exhaust valve – Quantity: 2.**

- It will include a free exhaust valve with silencer.

**Single acting cylinder – Quantity: 1.**

- Rod normally retracted.

- Stainless steel construction. Diameter: 20 mm. Stroke: 50 mm.

- Rubber cushion with built-in magnetic detection and rail.

**Double acting cylinder with rubber cushion – Quantity: 2.**

- Stainless steel construction. Diameter: 20 mm. Stroke: 100 mm.

- Rubber cushion with built-in magnetic detection and rail

**Pressure indicator – Quantity: 1.**

- It will include a red optical gauge with a display angle of 180°

**20+20 m set of 4 mm blue/white flexible tube – Quantity: 1.**

- Polyurethane tube, exterior diameter: 4mm, two-tone colour, for connections on pneumatic circuits.

**Set of 10 tee fittings – Quantity: 1.**

- Set of 10 one-touch fittings for 4 mm tubes

**Set of 10x4 mm plastic plugs – Quantity: 1.**

- Tool for plugging pressure outlets in 4 mm tube.

The system will consist of an extruded aluminium panel with 8.5mm slots on both sides, which will allow two groups of students to work at the same time on either side of the panel. The hydraulic and electro hydraulic components with which the students will work will be fitted on the panel.

All of the components will be formed by a prismatic body made of transparent methacrylate with metal industrial parts on the inside. Each component must be mounted on a plate, which will include holding clips to be able to insert the components in the work panel. The plates will bear a metal label identifying the component in question, including its reference number and ISO symbols.

**SYSTEM COMPONENT SPECIFICATIONS**

**Rolling table with twin-post – Quantity: 01**

- The system will consist of an extruded aluminium panel with 8.5mm slots to fix the components.
- External dimensions: 1150x760x25 mm.
- The entire rolling frame may be disassembled for transportation.
- It will include a post formed top for horizontal work, 1200 x 800 mm.
- The lower section will feature a 1200x600 mm metal shelf containing the component storage drawer block, the silent compressor, etc...
- Total dimensions: 1700x1200x800 mm.
- It will be designed for electrical power supply and compressed air connections.
- 4-wheel support, with brake and high loading output.

**Storage drawer block for rolling table with lock – Quantity: 1.**

- Compact 4-drawer block with slide guides to house the trays of components.
- Post formed material with ergonomically-designed pull devices.
- External dimensions: 500x460x640 mm.
- Lockable with key.

**Portable hydraulic pump for transparent hydraulic – Quantity: 1.**

- Transparent tank holding 6 litres.
- Single-phase motor 0.12 hp, 220v, 50Hz.
- Gear pump. Q= 1 l/min.
- Start - stop switch.
- Filling lid and filter.
- Pressure relief valve, Pressure max: 10 bar.

3. **HYDRAULIC  
AND  
ELECTRO  
HYDRAULIC  
CONTROL  
TRAINER  
KIT**

**01**

- Pressure gauge with diameter 40 mm, with scale from 0 to 16 bar.
- 3 quick connector couplings (P + 2T)
- Power supply cable, length of 3 metres, with single-phase plug.
- Air bubble insertion system in the circulation oil.
- Does not include oil drum.

**Oil with special red colouring – Quantity: 1.**

- Specially coloured oil for using with transparent elements.
- Quantity required for portable hydraulic pump.

**TRANSPARENT HYDRAULICS COMPOSITION – LEVEL I - QUANTITY: 1.**

**General features:**

- All the hydraulic components will use anti-leakage quick NW4 plugs self-sealing 1/8".
- All the components that should have, will be mounted on a base plate.
- Each of these components will include a fixing system to the assembly panel, with a specific design based on POM material (state-of-the-art polymer with self-lubricating properties, resistant to deformation, wear and ageing).
- All of the components will be formed by a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

**COMPRISING THE FOLLOWING COMPONENTS AND QUANTITIES:**

**Double acting cylinder**

- Double acting cylinder D20/D10 x 58mm of stroke.
- Pressure max: 10 bar
- In a prismatic body made of transparent methacrylate and with metal industrial parts on the inside.
- On a base plate with two NW4 plugs self-sealing 1/8".

QUANTITY: 1

**4/2 Directional control valve, manually operated.**

- Manually-operated and spring return.
- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.
- On a base plate with four NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Pressure relief valve, direct control**

- Pressure relief valve (ball), direct control.
- Manual adjustment using the twist handle.
- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with two NW4 plugs self-sealing 1/8".

QUANTITY: 1

**One way restrictor**

- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.
- On a base plate with three NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Two way flow control valve**

- Two-way flow control valve, with two ports, needle.
- Manual adjustment by rotary knob.
- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.
- On a base plate with two NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Set of 10 hoses**

- Set of 10 transparent polyurethane tubes.
- Pressure max: 10 bar.
- 520 mm length: 6 units
- 350 mm length: 4 units
- With two NW4 socket 1/8".

QUANTITY: 1

**6 connection distributor on manifold.**

- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate.
- On a base plate with six NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Cross distributor with pressure gauge**

- Distributor with 3 connections with pressure gauge from 0 to 16 bar.
- In a prismatic body made of transparent methacrylate.
- On a base plate with two self-sealing NW4 plugs and 1 NW4 socket 1/8".

QUANTITY: 1

**User's and exercise manual. English.**

- It will include dossiers with hydraulics - electro hydraulics activities proposed and solutions.

QUANTITY: 1

**TRANSPARENT HYDRAULICS COMPOSITION – LEVEL II - QUANTITY: 1.**

**General features:**

- All the hydraulic components will use anti-leakage quick NW4 plugs self-sealing 1/8".
- All the components that should have, will be mounted on a base plate.
- Each of these components will include a fixing system to the assembly panel, with a specific design based on POM material (state-of-the-art polymer with self-lubricating properties, resistant to deformation, wear and ageing).
- All of the components will be formed by a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

**COMPRISING THE FOLLOWING COMPONENTS AND QUANTITIES:**

**Single acting cylinder**

- Single acting cylinder D20/D10 x 40mm of stroke. Spring return.
- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate with metal industrial

parts on the inside.

- On a base plate with one NW4 plug self-sealing 1/8".

QUANTITY: 1

**3 way pressure relief valve with damping**

- Spool-type pressure relief valve, direct control.

- Manual adjustment by rotary knob.

- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with three NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Pressure reducing valve, 3 way. Direct control**

- Manual adjustment by rotary knob.

- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with three NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Manual shut-off valve, 2 way**

- 2-port shut-off valve.

- Manual rotary actuation.

- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with two NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Piloted check valve**

- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with three NW4 plugs self-sealing 1/8".

QUANTITY: 1

**One way flow control valve**

- Flow control valve with non-return, one-way.

- Manual adjustment by rotary knob.

- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with two NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Piloted check valve**

- Flow control valve with hydrostatic compensation.

- Manual regulation by rotary knob.

- Pressure max: 10 bar.

- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

- On a base plate with two NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Set of 5 hoses**

- Set of 5 transparent polyurethane tubes.
- Pressure max: 10 bar.
- 520 mm length.
- With two NW4 socket 1/8".

QUANTITY: 1

**4 connection divider**

- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate.
- On a base plate with three self-sealing NW4 plugs and 1 NW4 socket 1/8".

QUANTITY: 1

**User's and exercise manual. English**

- It will include dossiers with hydraulics - electro-hydraulics activities proposed and solutions.

QUANTITY: 1

**TRANSPARENT ELECTROHYDRAULICS COMPOSITION – QUANTITY: 1.**

**General features:**

- All the hydraulic components will use anti-leakage quick NW4 plugs self-sealing 1/8".
- All the electrical connectors will include 4 mm security terminals.
- All the components that should have, will be mounted on a base plate.
- Each of these components will include a fixing system to the assembly panel, with a specific design based on POM material (state-of-the-art polymer with self-lubricating properties, resistant to deformation, wear and ageing).
- All of the components will be formed by a prismatic body made of transparent methacrylate with metal industrial parts on the inside.

**COMPRISING THE FOLLOWING COMPONENTS AND QUANTITIES:**

**4/2 Solenoid valve, spring return**

- Coil-operated with low consumption of 24Vcc 12w and spring return.
- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.
- On a base plate with four NW4 plugs self-sealing 1/8".

QUANTITY: 1

**4/3 Solenoid valve with closed mid-position**

- Coil-operated with low consumption of 24Vcc 12w on both sides and spring centred.
- Pressure max: 10 bar.
- In a prismatic body made of transparent methacrylate with metal industrial parts on the inside.
- On a base plate with four NW4 plugs self-sealing 1/8".

QUANTITY: 1

**Power supply:**

- Input: 110 - 240 VAC
- Output: 24 VDC, I= 5A.
- Protection against short circuit and overload. Input switch and LED display.
- Supply cable included.
- 4 mm terminals for snap connection cables

**Set of push-buttons**

- 2 Push buttons: 1 green, 1 red, with 2 open contacts +2 closed contacts
- 1 Selector with 2 open contacts + 2 closed contacts.
- 4 mm terminals for snap connection cables.

QUANTITY: 1

**Set of three relays**

- 3 relays with 24VDC coil and 4 switchable contacts.
- Relay-active LED.
- 4 mm terminals for snap connection cables.

QUANTITY: 1

**Electrical end of stroke (right)**

- 1 contact NC and 1 contact NO.
- With cables and 4 mm security terminals.
- Mounted on base plate and fixing system to the assembly panel.

QUANTITY: 1

**Electrical end of stroke (left)**

- 1 contact NC and 1 contact NO.
- With cables and 4 mm security terminals.
- Mounted on base plate and fixing system to the assembly panel.

QUANTITY: 1

**Set of connectors for solenoids. 2 grey + 1 black**

- Connector (2 grey and 1 black colour) + LED + cable + 4 mm terminals (1 red and 1 blue colour).

QUANTITY: 1

**Set of electrical connectors**

- Comprising 25 cables of different colours and length with 4 mm security terminals.

QUANTITY: 1

**User's and exercise manual. English**

- It will include dossiers with hydraulics - electro hydraulics activities proposed and solutions.

QUANTITY: 1

The system will consist of an extruded aluminium panel with 8.5mm slots on both sides, which will allow two groups of students to work at the same time on either side of the panel. The pneumatic and electro-pneumatic components with which the students will work will be fitted on the panel.

All of the components must be industrial. Each component must be mounted on a stainless steel plate, which will include holding clips to be able to insert the components in the work panel. The stainless steel plates will bear a metal label identifying the component in question, including its reference

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number and ISO symbols.

All of the components will include silencers and one-touch fittings for 4mm tubing. The electric and/or electro-pneumatic components will include all of the necessary cables with instant connections for 2mm-diameter power jacks. All of the pneumatic components must be lubricated, which must last throughout their service life without the need for lubricators.

**SYSTEM COMPONENT SPECIFICATIONS**

**Rolling table with twin-post – Quantity: 1.**

- The system will consist of an extruded aluminium panel with 8.5mm slots to fix the components.
- External dimensions: 1150x760x25 mm.
- The entire rolling frame may be disassembled for transportation.
- It will include a post formed top for horizontal work, 1200 x 800 mm.
- The lower section will feature a 1200x600 mm metal shelf containing the component storage drawer block, the silent compressor, etc...
- Total dimensions: 1700x1200x800 mm.
- It will be designed for electrical power supply and compressed air connections.
- 4-wheel support, with brake and high loading output.

**Storage drawer block for rolling table with lock – Quantity: 1.**

- Compact 4-drawer block with slide guides to house the trays of components.
- Post formed material with ergonomically-designed pull devices.
- External dimensions: 500x460x640 mm.
- Lockable with key.

**Air Cleaning unit with 3/2 distribution valve – Quantity: 1.**

- 5 um filtering.
- It will include a 3/2 discharge valve with silencer for connection and disconnection of the rest of the circuit.
- Possibility of vertical and horizontal positioning.

**Distribution block – Quantity: 1.**

- It will include 8-outlet distribution block, one Couch fittings and non-return system.
- Direct coupling to the air cleaning unit.

**Single direction speed controller (double) - Quantity: 2.**

- It will include two single direction speed controllers, operated manually.

**Quick exhaust valve – Quantity: 2**

- It will include a free exhaust valve with silencer.

**Single acting cylinder – Quantity: 1.**

- Rod normally retracted.
- Stainless steel construction. Diameter: 20 mm. Stroke: 50 mm.
- Rubber cushion with built-in magnetic detection and rail.

**Double acting cylinder with rubber cushion – Quantity: 1.**

- Stainless steel construction. Diameter: 20 mm. Stroke: 100 mm.
- Rubber cushion with built-in magnetic detection and rail



**5/2 single solenoid valve – Quantity: 1.**

- Low consumption: 0,55W.
- LED display and surge absorber.
- Spring and air reset.
- Power-assisted system.

**5/2 double solenoid valve – Quantity: 1.**

- Low consumption: 0,55W
- LED display and surge absorber.
- Spring and air reset.
- Power-assisted system.

**Power supply – Quantity: 1.**

- Input voltage: 110 - 240 VAC
- Output: 24 V / 2 A
- Protection against short circuits. Input switch and LED display.
- Supply cable included.

**Set of electrical inputs (Button pad with 3 push-buttons) – Quantity: 1.**

- 2mm terminals for use with snap connectors.
- Two push-buttons and a locking push-button.
- Independent light indicator.
- Two push button switch contacts

**Set of 3 relays – Quantity: 1.**

- It will include three relays with 24V coil and 4 switchable contacts.
- Relay-active led.
- 2mm terminals for use with snap connection cables.

**Indicators (pilots, buzzer) – Quantity: 2.**

- It will include 8 pilot lights and a buzzer.
- Supplementary terminals for power distribution.
- 2mm terminals for snap connection cables.

**Set of 2 timer relays – Quantity: 1.**

- It will include two timer relays, one for connection and the other for disconnection.
- 24V coil, with switch contact.
- LED display of timer status.
- Time programmable between 0.1s and 1 h.

**Electric counter – Quantity: 1.**

- It will include inputs for counting and discounting.
- Power supply: 24V.
- Electromechanical preselection.
- Manual or electrical reset
- Switch contact.
- 2mm terminals for snap connection cables.

**Photoelectric detector – Quantity: 1.**

- It will include M18 reflection photoelectric detector.

- Detection distance: 100 mm.
- Status display LED.
- Operating voltage: 24V

**Electrical end of stroke – Quantity: 2.**

- It will include Roller-driven end of stroke with switchable electric contact.

**Programmable digital vacuum pressure switch. Analog / digital outputs – Quantity: 1.**

- Operating voltage: 24 V
- Consumption: 45 mA
- Pressure range: -1 to 0,1 MPa.
- Three numerical digits.
- PNP Output with snap connection cables.

**20+20 m set of 4 mm blue/white flexible tube – Quantity: 1.**

- Polyurethane tube, exterior diameter: 4mm, two-tone colour, for connections on pneumatic circuits.

**Set of 10 tee fittings – Quantity: 1.**

- Set of 10 one-touch fittings for 4 mm tubes.

**Set of 10x4 mm plastic plugs – Quantity: 1.**

- Tool for plugging pressure outlets in 4 mm tube.

**Set of connection cables – Quantity: 1.**

- It will include 50x 2mm (diameter) snap connection cables with different colours and lengths.

Reputed Brand PLC with 12 Digital inputs and 8 Digital outputs & 2 Analog inputs and 1 Analog output. , PLC Software, Programming Cable and 24 VDC Power Supply.

Reputed Brand PLC with 12 Digital inputs and 8 Digital outputs & 2 Analog inputs and 1 Analog output. , PLC Software, Programming Cable and 24 VDC Power Supply.

5. **PLC kit for Electro-Hydraulic Trainer kits.**

**05**

6. **PLC kit for Electro-Pneumatic Trainer kits.**

**Pneumatic cylinder with 63mm bore dia and 200mm stroke**

Air Cylinder Bore 63 mm , Stroke 200 MM , Maximum operating pressure 1 MPa, Fluid temp 12degree C to 70 degree C

**05**

**Smart positioner ( Rotary Type)**

Supply Pressure 0.3 Mpa-0.7 MPa , Input Current 4-20 mA DC , Ambient and fluid temp -20 Degree C to 80 Deg C , sensitivity within 0.2% F.S. , Linearity within +/- ( Plus /minus) 1% FS , Hysteresis within 0.5% FS , Air Consumption

7.	<b>Linear scale setup for positional accuracy check</b>	<p>11 LPM ( ANR ) or less at sup 0.4 MPa , HART Transmission , maximum weight 2.6 kg</p> <p><b>Linkages</b> Linear Movement</p> <p><b>Voltage/Current calibrator</b> 4-20 mA</p> <p><b>Pick and Place Station</b></p> <ul style="list-style-type: none"> <li>• 2 axis handling features</li> <li>• Mounting position and height of limit switch should be adjustable.</li> <li>• Vacuum technology (Vacuum generator, pressureswitch, vacuum filter, suction cup) or Parallel gripper technology.</li> <li>• Conveyor with sensors to detect work pieces placed on conveyor.</li> <li>• A trolley with door to mount the station on it and to keep accessories inside.</li> </ul>	01
8.	<b>PLC based conveyor system with Pick and Place and Sorting of Objects (Pneumatic &amp; Hydraulics)</b>	<p>Space for assembly board for the electrical connections and PLC.</p> <p><b>Sorting Station</b></p> <ul style="list-style-type: none"> <li>• Sensors to differentiate among work pieces based on their colour.</li> <li>• Space for storing at least 30 work pieces.</li> <li>• A pneumatic gripper to pick the work piece and place it in storage area.</li> <li>• Storage area at both the place i.e., at the start (Work pieces removal from storage) and at the end (Work pieces placement in the storage)</li> <li>• A trolley with door to mount the station on it and to keep accessories inside.</li> <li>• Space for assembly board for the electrical connections and PLC.</li> </ul> <p><u>PLC Specifications</u> Digital inputs/outputs-32</p> <p><b>Pneumatic :</b> Cut sections of Air Filter , Air Regulator , Air Lubricator , ISO Cylinder , Tie Rod air cylinder , Gripper , Rotary actuator , solenoid valve 3/2 , solenoid valve 5/2 , Mechanical Valve , quick exhaust valve , rod less cylinder</p> <p><b>Hydraulic:</b> Double Acting Cylinder, 4/3 Double Solenoid valves and Pressure relief valve</p>	01
9.	<b>Cut section Models of Pneumatic and Hydraulic Motor, Pumps</b>	<p>The software should allow 2D and 3D simulation of industrial automation applications that incorporate pneumatic, electro-pneumatic, hydraulic, electrohydraulic, electrical and electronic technology simultaneously through graphics.</p> <p><b>Minimum specifications:</b></p> <ul style="list-style-type: none"> <li>• Configurable environment.</li> </ul>	01

10.	<b>Simulation Software for Electrical, Electronics, Pneumatics &amp; Hydraulics</b>	<ul style="list-style-type: none"> <li>• Synchronisation between every type of simulation available in the program.</li> <li>• Display of the library component categories through drop-down menus, showing the standard symbol separately.</li> <li>• Generation of self-compressed executables that can be run on PCs without a licence.</li> <li>• Option of moving an individual or local licence from one PC to another.</li> <li>• Option of printing the programs and applications that the user has created in any format.</li> <li>• Option of opening executable programs outside the simulation environment.</li> </ul> <p><b>The software will allow:</b></p> <p><u>SIMULATION:</u></p> <ul style="list-style-type: none"> <li>• The dynamic simulation of pneumatic/electro-pneumatic, hydraulic/electrohydraulic, electrical and electronic circuits (sequential and combinational).</li> <li>• Importing of 3D drawings from the following programs: <i>3D Studio</i> and <i>SolidWorks</i>.</li> <li>• Design and dynamic simulation of operational parts in 2D and 3D, generation of animated demonstrations and design of system supervision application.</li> </ul> <p><u>PROGRAMMING:</u></p> <ul style="list-style-type: none"> <li>• The creation of <i>Grafcet</i>, <i>Ladder</i>, <i>Logigramme (logic gates)</i> and functional block diagrams with structured text. When the simulation is run, the application can be monitored and controlled step-by-step.</li> <li>• Generation of symbol tables to be able to address the variables.</li> </ul> <p><u>CONNECTING THE APPLICATION WITH THE OUTSIDE WORLD:</u></p> <ul style="list-style-type: none"> <li>• This connection can be established through: <ul style="list-style-type: none"> <li>○ Automaton (PLCs) via OPC communication protocol.</li> <li>○ Data acquisition cards.</li> </ul> </li> </ul> <p><b>LIBRARIES:</b></p> <ul style="list-style-type: none"> <li>• SIMULATION <ul style="list-style-type: none"> <li>○ Pneumatic – Hydraulic which will incorporate the following elements: accessories (filters, regulators, lubricators, dryers, etc.), power supply, actuators, on/off and proportioning valves, detectors, logic gates, pressure regulators, speed controllers, motors, timers, etc...</li> <li>○ Electrical which will incorporate the following elements: accessories (diode, fuse, voltmeter, etc.), output components (solenoid valve, relay),</li> </ul> </li> </ul>	10
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11.	Air Compressor	<p>connection blocks, contact switches, detectors, power supplies, motors (single phase and three-phase DC and AC), etc.</p> <ul style="list-style-type: none"> <li>○ Electronic which will incorporate the following elements: meters, flip-flops, power supplies, logic gates, displays, etc.</li> <li>○ User-defined objects with own designs and pneumatic, hydraulic or electrical connections using commands such as MOVV, ADDV, SUBV, MULV, DIVV, JUMP, JPIF, ORRV, ANDV, XORV, etc.</li> </ul> <ul style="list-style-type: none"> <li>• PROGRAMMING <ul style="list-style-type: none"> <li>○ Ladder, Grafcet, Logigramme and Structure Text programming.</li> </ul> </li> </ul> <p><u>DOCUMENTATION</u></p> <ul style="list-style-type: none"> <li>• The package will include the following documentation in digital format: <ul style="list-style-type: none"> <li>○ Language reference material.</li> <li>○ Environment reference material.</li> <li>○ SIMULATION module manual.</li> <li>○ PROGRAMMING module manual.</li> <li>○ 2D SIMULATION module manual.</li> <li>○ 3D SIMULATION module manual.</li> </ul> </li> <li>• The package will include the following documentation on hardcopy: <ul style="list-style-type: none"> <li>○ Quick start guide.</li> </ul> </li> </ul> <p>Oil lubricated Air Compressor suitable for use in classrooms and Labs. It should be complete with filter, regulator and water separator.</p> <p>Filtration of 5.0μ.  Pressure: 800 kPa (8 bar)  Flow Capacity: 270lpm  Tank Volume: 50l  Duty Cycle: 50%  Noise: ≤60 dB</p> <p>Each Station will perform like a virtual Industrial machine, which can be configured as any manufacturing machine.</p> <p>Material Should be automatically loaded through the vacuum cups &amp; Raw material should enter through the RFID gate at the entrance of the station.</p> <p>RFID reader will read tag before performing required operation as per the information available on tag.</p>	01
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<p><b>12. Two Station VIRTUAL MACHINE Set Up For Study and Research Purpose</b></p>	<p>These stations consist of an electrical actuator to simulate feed control &amp; one motor as a spindle simulation.</p> <p>Machining operation is simulated by controlling/holding electrical actuator over the work piece for pre-set time period</p> <p>Material Unloading should be automatic through vacuum cups.</p> <p>The system should have a base feeder module with storage capacity of Minimum 08-10 work pieces.</p> <p>The system should have the following technologies &amp; Features &amp; specifications:</p> <ol style="list-style-type: none"> <li>1. 14" monitor display for user interface.</li> <li>2. Ultra-compact industrial Controller having Windows PC configuration Processor IntelR Atom™ E3845, 1.91GHz, 4 cores (TC3: 50) and memory extension to 4 GB DDR3L instead of Intel R Atom™ E3815, 1.46 GHz (TC3: 40) and 2 GB DDR3L main memory. Memory extension requires a 64 bit operating system or only 3 are addressable. With Microsoft Windows Embedded Compact 7 only one core is supported. Multicore support is available with Windows Embedded Standard 7, Windows 7 Professional, Windows 7 Ultimate and Windows 10 IoT Enterprise. System supports 3rd party applications like Java, Python, C,C++ SCADA Functions inbuilt in controllers software. System will have Wi-Fi LAN Network.</li> <li>3. RFID reader/writer 50mm sensing range with metal housing transponder. Operating frequency 13.56 MHz IO- link interface Conforms to ISO 15693. Suitable for FRAM transponder LEDs as function indicators. Particularly flat construction Connection cables with V1 plug (M12 x 1). Degree of protection IP67 can be mounted on metal For Connection to IO-Link master.</li> <li>4. Valve manifold unit with serial interface unit.</li> <li>5. Actilink9 SI- D smart energy monitoring system, Improved load monitoring E, U, I, P, Pf, Basic energy metering Load alarming , supply 110...230 V AC +/- 20 %,Up to 20 wireless devices. Radio frequency 2.4 ..2.4835 GHz Power Tag 20.</li> <li>6. IO-Link master module, 4-channel input terminal, 3-wire connection, 24 V DC.</li> <li>7. Ether cat communication card for device to device communication.</li> <li>8. Electrical actuators - On Ether cat / IO-link, acceleration/deceleration 3000, ball screw driven, Lead size 10mm, +/-0.1 mm accuracy.</li> <li>9. OPC UA Communication between stations.</li> <li>10. Vacuum cups &amp; Energy efficient vacuum ejection &amp; release system for work piece handling.</li> </ol>	<p><b>01</b></p>
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- 11. Pressure switch 0~10 bar with IO-link output, operating voltage 24V DC.
- 12. Flow switch 0~100 LPM with IO-link output, operating voltage 24vdc.
- 13. Photo sensor 0~100 mm sensing range with IO-link output, operating voltage 24vdc.
- 14. Pneumatic Actuators (operating pressure 6 bar, fail proof pressure 10 bar With low friction ( crackingpressure less than 1 bar & smooth operation feature) & equipped with auto switches For position detection.
- 15. Table type rotary actuator with angel adjustment provision.
- 16. Energy efficient valves for pneumatic actuator.
- 17. Robust & flexible profile structure to integrate with other station.
- 18. Automatic feeding, feed out type flat belt conveyor.
- 19. System should have Global IoT on mobile application support for two mobile devices.
- 20. It should have Scada with 128 tags single user license.

The system will provide professional training by simulating a real industrial assembly process and including several Industry 4.0 technologies. The system will consist of a compact Flexible Automated Assembly Cell with five different manufacturing stages:

- 1. Assembly
- 2. Manipulation
- 3. Quality Inspection
- 4. Transfer
- 5. Warehouse and Expedition

The technologies integrated in the system will be:

- Advanced electro-pneumatics
  - Vacuum technology
  - Sensors
  - UID (Unique Identifier Device): RFID identification systems
  - Binary identification systems
  - IO-link Smart sensors
  - IO-link Smart light & sound
  - Artificial vision
  - Servo-controlled electric actuator
  - Industrial controllers (Ethernet communication)
  - HMI
  - Augmented reality
  - Distributed I/O
  - Troubleshooting simulation systems

**13. Automated Flexible Assembly Cell: Mechatronics for Industry 4.0 – Pneumatic configuration**

**01**

All the hardware elements of the system will be industrial ensuring the quality, long life and robustness of the system.

The system will integrate a Manufacturing Management HMI Application for managing the production process, which will include the following functions:

- Assembly configuration and tracking
- Production order management
- Warehouse
- Expedition
- Quality Inspection

**PROCESS STATIONS AND OPTIONALS:**

The system will integrate the next stations and quantities:

**LID CLASSIFICATION STATION - Quantity: 1.**

The function of the station will be to feed and to check the lid.

The part to be assembled will be a lid. There will be three lid options depending on the material: anodised aluminium, blue plastic and white plastic. Each lid will have two different heights, regardless of the material.

The station will be formed by a 450x600x900mm height-adjustable aluminium structure on which the components used to perform the process will be mounted, which includes a block of control solenoid valves in the case of pneumatic components and a no-material indication lamp.

The electrical panel will be on the front, from which the station will be controlled. It will also include the control keypad, with the following buttons and indicator lights: start, stop and reset (with lamp) buttons, continuous/single cycle selector and disconnecting switch and certified emergency stop button.

On one side of the station there will be an air treatment unit comprising a 5µm filter with a pressure controller, pressure gauge and a manual 3/2 stop valve.

The station will comprise the following modules:

**- Dividing plate:**

Made of anodised aluminium, this module will be used as an alternative rotary drive system; with each rotary movement, it will advance 45 degrees. This will be achieved by a pneumatic pusher cylinder with oscillating drive. It will also have another two limiter cylinders operating alternately; one of them moving which will hold the plate while it turns, and the other fixed, which will lock it once the turning movement has stopped so that the plate is held firmly in place, and the pusher cylinder can return to its initial position to wait for a new cycle. This module will have the following components and characteristics:

- Actuators:
  - o Compact double acting pusher cylinder, Ø25 and 40mm stroke, with speed controllers and initial position switch. Controlled by a single 5/2 solenoid valve.
  - o Limits: 2 compact cylinders, Ø16, 10mm stroke. Controlled by a single 5/2 solenoid valve.
- Sensors:
  - o Auto switch, reed type.

**- Feeding the lid:**

The lids will be stored in a gravity feeder including two pneumatic grippers with two parallel-opening jaws. This module will have the following components and characteristics:



- Storage capacity: minimum 19 lids.
- Actuators:
  - o 2 gripper with two parallel-opening jaws. Controlled by 5/2 solenoid valve.
- Sensors:
  - o Presence sensor: fibre optic photocell.

**- Material and colour detection:**

Two measurements will be taken to determine the lid material and colour using inductive and photoelectrical detectors. This module will have the following components and characteristics:

- Sensors:
  - o Inductive detector.
  - o Smart photoelectric detector, with IO-link technology.

**- Lid measuring station:**

The lid height will be measured using a pneumatic cylinder that moves a plunger with regulated pressure until it touches the lid. This cylinder will include a digital transducer that will send a linear encoder with pulse output, depending on the cylinder's stroke. This module will have the following components and characteristics:

- Actuators:
  - o Double acting cylinder with stroke reading, Ø20 and 50mm stroke, with speed controllers. Controlled by a single 5/2 solenoid valve.
- Sensors:
  - o Linear encoder built into the cylinder.
  - o Pressure regulator.

**- Smart IO-link devices:**

The system will include IO-link devices with Smart features:

- IO-link valve manifold: number of valve operation counter for predictive maintenance, power supply failure detection, short circuit detection, abnormal internal temperature, internal failure detection.
- IO-link smart photoelectric sensor: eight colour detection, remote monitoring and diagnosis.
- IO-link smart light device & sound: 7 colour LED emission, 8 sounds emission and remote monitoring.

**- Breakdown generation system:**

The station will have the possibility of generating up to 16 breakdowns or malfunctions. For this purpose, a box will be assembled on the side of the station structure, inside which there will be 16 switches to activate the same number of breakdowns. When a switch is activated, a breakdown will occur in one of the station components. To access these switches, the box lid will have to be opened, which can be locked.

**- Electrical control panel:**

All of the cables and pneumatic tubing will be properly identified and labelled at both ends.

- Mounted on a 375x700mm mesh
- Accessible electrical connection terminal box with power input and coded I/O.
- It will include 110-240VAC/24VDC power supply unit.
- 1 control PLC wired and programmed to operate the module with 10

digital inputs and 5 digital outputs connected to the hardware.

- IO-link master device with Ethernet standard connection.
- Industrial communication via standard Ethernet for communication with the other modules.

**LID REJECTION/TRANSFER STATION pneumatic CONFIGURATION - QUANTITY: 1.**

The function of the station will be to reject the incorrect lids and to assemble the correct ones.

The part to be assembled will be a lid. There are three lid options depending on the material: anodised aluminium, blue plastic and white plastic. Each lid will have two different heights, regardless of the material.

The station will be formed by a 450x600x900mm height-adjustable aluminium structure, on which the components used to perform the process will be mounted, which will include a block of control solenoid valves in the case of pneumatic components.

The electrical panel will be on the front, from which the station will be controlled. It will also include the control keypad, with the following buttons and indicator lights: start, stop and reset (with lamp) buttons, continuous/single cycle selector and disconnecting switch and endorsed emergency stop button.

On one side of the station there will be an air treatment unit comprising a 5µm filter with a pressure controller, pressure gauge, manual 3/2 stop valve.

The station will comprise the following modules:

**- Removal of the incorrect lid module:**

It will consist of a handling device that, when it receives the command, removes the lid from the plate. It will consist of two pneumatic shafts that will have three vacuum pads as the terminal elements. Each one will contain a pneumatic cylinder with parallel rods. This module will have the following components and characteristics:

- Actuators:
  - o Horizontal axis: Double acting parallel-rod cylinder, Ø15 and 100mm stroke, with speed controllers and initial and end position switches. Controlled by a double 5/2 solenoid valve.
  - o Vertical axis: Double acting parallel-rod cylinder, Ø10 and 50mm stroke, with speed controllers and start position switch. Controlled by a single 5/2 solenoid valve.
  - o Fixing arm: 3 Ø8 vacuum pads, with vacuum ejector. Controlled by a single 3/2 solenoid valve.
- Sensors:
  - o Auto switches, reed type.
  - o PNP output vacuum switch.

**- Lid insertion module:**

The lid will be inserted in the assembly by a handling device formed by a rotoliner unit with a gripper with two parallel-opening jaws. This module will have the following components and characteristics:

- Actuators:

- Compact linear and rotary drive cylinder, Ø32, 25mm stroke, with speed controllers and initial and end of stroke position switches during linear movement and 0° and 180° during rotary movement. Controlled by two single 5/2 solenoid valves.
- Fixing arm: Pneumatic grippers with two parallel-opening jaws. Controlled by a single 5/2 solenoid valve.
- Sensors:
  - Auto switches, reed type.

**-Breakdown generation system:**

The station will have the possibility of generating up to 16 breakdowns or malfunctions. For this purpose, a box will be assembled on the side of the station structure, inside which there will be 16 switches to activate the same number of breakdowns. When a switch is activated, a breakdown will occur in one of the station components. To access these switches, the box lid will have to be opened, which can be locked.

**- Electrical control panel:**

All of the pneumatic cables and tubing will be properly identified and labelled at both ends.

- Mounted on a 375x700mm mesh
- Accessible electrical connection terminal box with power input and coded I/O.
- It will include 110-240VAC/24VDC power supply.
- 1 control PLC wired and programmed to operate the module with 13 digital inputs and 10 digital outputs connected to the hardware.
- Industrial communication via standard Ethernet for communication with the other modules.

**STORAGE AND EXPEDITION STATION – QUANTITY: 1.**

The function of the station will be to feed the base, which acts as the support to a turning mechanism, and move it to the next station.

The assembly to be stored will be a turning mechanism formed by a 65x65x32mm anodised aluminium block with an opening at the top, 32mm diameter, and an opening in the bottom, 28mm diameter.

The station will be formed by a 450x600x900mm height-adjustable aluminium structure, on which the components used to perform the process will be mounted, which include a block of control solenoid valves in the case of pneumatic components.

The electrical panel will be on the front, from which the station will be controlled. It will also include the control keypad, with the following buttons and indicator lights: start, stop and reset (with lamp) buttons, continuous/single cycle selector and disconnecting switch and endorsed emergency stop button.

On one side of the station there will be an air treatment unit comprising a 5µm filter with a pressure controller, pressure gauge and manual 3/2 stop valve.

The station will comprise the following modules:

**- Vertical axis:**

The vertical axis will be formed by a parallel rod pneumatic cylinder to which a platform will be attached with four vacuum pads to hold the part. This module will have the following components and characteristics:

- Actuators:
  - o Double acting parallel-rod cylinder, Ø20 and 75mm stroke, with speed controllers and initial and end position switches. Controlled by a single 5/2 solenoid valve.
  - o Holding system: 4 Ø16 vacuum pads, with vacuum ejector. Controlled by a single 3/2 solenoid valve.
- Sensors:
  - o Auto switches, reed type.
  - o PNP output digital vacuum pressure switch.

**- Positioning axes:**

The system to position the assembly at the different points on the desktop surface will be formed by two linear axes: one of them electric and the other one pneumatic. This module will have the following components and characteristics:

- Actuators:
  - o 1 linear servo driven actuator.
  - o 1 double acting air slide table: Ø20 and 75mm stroke, with speed controllers and initial and end position switches. Controlled by a double 5/2 solenoid valve.
- Sensors:
  - o Auto switches, reed type.

**-Warehouse and expedition:**

A horizontal warehouse with 8 positions will be integrated in the station. Each position on the warehouse will be numbered and identified.

The expedition of the assembly will be done by means of two different ramps. One of them will be dedicated to finished and verified products and, the other one, to those products that have not passed the quality inspection verification.

**-HMI screen:**

A 7" capacitive tactile colour screen will be integrated in order to control the Manufacturing Management Application. This screen will have a resolution of 800x480, 600 cd/m2 brightness, ARM CORTEX A8 processor, RAM 256 MB DDR3.

HMI programming software will be included.

The HMI Screen will include the Manufacturing Management Application with the next features and menus:

- Assembly configuration and tracking
- Production order management
- Warehouse status
- Expedition
- Quality Inspection

**- Electrical control panel:**

All of the pneumatic cables and tubing will be properly identified and labelled at both ends.

- Mounted on a 375x700mm mesh
- Accessible electrical connection terminal box with power input and coded I/O.
- It will include 110-240VAC/24VDC power supply unit.
- It will include 1 servo driver to control the motors built into the linear actuator.
- It will include programming software and cable for the servo driver.
- 1 control PLC wired and programmed to operate the module with 13 digital inputs and 12 digital outputs connected to the hardware.
- Industrial communication via standard Ethernet for communication with the other modules.

**LINEAR TRANSFER FOR 3 STATIONS – QUANTITY: 1.**

The pallet transport system will be formed by an aluminium structure that will connect the three process stations. It will include a 24VDC motor, mechanical stoppers and binary reading devices for the pallets. It will allow extending the system in the future.

Additionally, RFID reading /writing antennas and the artificial vision module will be installed on the transfer.

The transfer module will include three different stop positions with the following components and characteristics:

- Actuators:
  - o 1 compact double acting cylinders, Ø32, 25mm stroke. Controlled by single 5/2 solenoid valves.
- Sensors:
  - o 3 inductive detectors.
  - o 1 microswitch.
- Distributed I/O Ethernet device.
- Size: 1350x315 mm. Height: 940 mm.

**-Artificial vision device:**

An artificial vision camera will be included in the transfer in order to verify that the assembly has been done in a proper way. Programming software will be included.

**-Identification systems:**

The transfer system will integrate two technologies to identify the assembled product:

- UID (Unique Identifier): RFID: three antennas for reading/writing information on the RFID tags attached to the pallets.
- Binary identification: 3 inductive detectors are used to identify the pallet on each stopper.

**-Wi-Fi access point:**

It will have a wireless access point. This device will generate a local Wi-Fi network associated with the system's network, which will allow the user to connect wirelessly to the system.

**OTHER INCLUDED ITEMS:**

**: MANUFACTURING HMI APPLICATION - QUANTITY: 1.**

The system will integrate a Manufacturing Management HMI Application for managing the production process, which will include the following functions:

- Assembly configuration and tracking
- Production order management
- Warehouse status
- Expedition
- Quality Inspection

**•AUGMENTED REALITY APPLICATION- QUANTITY: 1.**

The system will integrate an Augmented Reality Application for identifying points of interest and accessing to schemas, datasheet and further information by means of a portable device (smartphone or tablet).

**PLC programming software – Quantity: 1**

- It will include 1 programming software license for PLC.

**Ethernet cable – Quantity: 1**

- It will include 1 standard Ethernet cable with (2x) RJ-45 connectors.