

**Request for Proposal (RFP) Document
for**

Setting up “COE” for Building & Industrial Automation

Scope of Work :- Supply, Installation, Testing, Commissioning, Training & Maintenance of Industrial Automation & Building Automation Labs to be set up in Centre of Excellence at MIT Muzaffarpur.

NIT No. 01/2018-19/DST/MIT-M

Dated: 24th November 2018

Mode of Bid Submission	e-Bid
Procuring Authority	Principal, MIT, Muzaffarpur
Last Date & Time of Submission of Bid	20 th December 2018
Date & Time of Opening of Technical Bid	21 st December 2018

Bidding Document Fee: Rupees One Thousand Only (Rs. 1,000/- only)

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ABBREVIATIONS & DEFINITIONS

Act	Public Procurement Act, 2012 and Rules thereto
Authorized Signatory	The bidder's representative/ officer vested (explicitly, implicitly, or through conduct) with the powers to commit the authorizing organization to a binding agreement. Also called signing officer/ authority having the Power of Attorney (PoA) from the competent authority of the respective Bidding firm.
BG	Bank Guarantee
Bid/ e Bid	A formal offer made in pursuance of an invitation by a procuring entity and includes any tender, proposal or quotation in electronic format
Bid Security	A security provided to the procuring entity by a bidder for securing the fulfilment of any obligation in terms of the provisions of the bidding documents. Also called as EMD.
Bidder	Any person/ firm/ agency/ company/ contractor/ supplier/ vendor participating in the procurement/ bidding process with the procurement entity
Bidding Document	Documents issued by the procuring entity, including any amendments thereto, that set out the terms and conditions of the given procurement and includes the invitation to bid
BoM	Bill of Material
Competent Authority	An authority or officer to whom the relevant administrative or financial powers have been delegated for taking decision in a matter relating to procurement.
Contract/ Procurement Contract	A contract entered into between the procuring entity and a successful bidder concerning the subject matter of procurement.
EMD	Earnest Money Deposit. Also, called as Bid Security.

INR	Indian Rupee
ISO	International Organization for Standardization
ITB	Instruction to Bidders
PAN	Permanent Account Number
PBG	Performance Bank Guarantee
PC	Procurement/ Purchase Committee
PQ	Pre-Qualification
Procurement Process	The process of procurement extending from the issue of invitation to Bid till the award of the procurement contract or cancellation of the procurement process.
Procurement/ Public Procurement	The acquisition by purchase, lease, license or otherwise of works, goods or services, including award of Public Private Partnership projects, by a procuring entity whether directly or through an agency with which a contract for procurement services is entered into, but does not include any acquisition without consideration, and “procure” or “procured” shall be construed accordingly
TIN	Tax Identification Number
GST	Goods & Service Tax

Department of Science and Technology

Muzaffarpur Institute of Technology, Muzaffarpur, Bihar, India. Pin - 842003

1. NOTICE INVITIG e-TENDER

(Through e-Procurement mode only over
(<https://www.eproc.bihar.gov.in>)

Tender Notice No: 01/2018-19/DST/MIT-M

Date: 24/11/2018

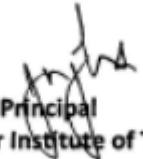
Muzaffarpur Institute of Technology, invites under two bid systems from reputed organizations/companies by this Department for Setting up "COE" for Building & Industrial Automation Scope of Work :- Supply, Installation, Testing, Commissioning, Training & Maintenance of industrial Automation & Building Automation Labs to be set up in Centre of Excellence at MIT Muzaffarpur.

SL No.	Scope of work	Estimated Cost	Cost of tender document (In Rupees) (inclusive of GST @18.00%) to be paid through e-payment mode (i.e. NEFT/RTGS, Credit Card/Debit card)	Tender processing Fee(Non Refundable) (inclusive of GST @18.00%) to be paid through e-payment mode (i.e. NEFT/RTGS, Credit Card/Debit card) (in Rupees)	Earnest Money Deposit (In Rupees)
1	2	4	5	6	7
01.	Setting up "COE" for Industrial Automation Scope of Work :- Supply, Installation, Testing, Commissioning, Training & Maintenance of Industrial Automation Lab to be set up in Centre of Excellence at MIT Muzaffarpur	Rs 75,00000.00	Rs. 1,000.00	Rs. 5900.00	Rs. 1,50,000.00
02	Setting up "COE" for Building Automation Scope of Work :- Supply, Installation, Testing, Commissioning, Training & Maintenance of Building Automation Lab to be set up in Centre of Excellence at MIT Muzaffarpur	Rs 75,00000.00	Rs. 1,000.00	Rs. 5900.00	Rs. 1,50,000.00

Tender Schedule/Programme:

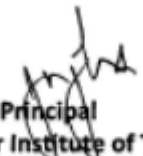
Sl. No.	Activity	Date/Time : Duration
1.	Online Sale/Download date of Tender documents	From 29-11-2018 to 20-12-2018 (14:00 Hrs.) (https://www.eproc.bihar.gov.in)
2.	Bid Clarification Date/Time (Pre-Bid Meeting)	10-12-2018 Up to 15.00 Hrs. Muzaffarpur Institute of Technology, Muzaffarpur, Bihar, India. Pin – 842003
3.	Date/Time for submission/ uploading of offer/Bid	20-12-2018 Up to 15.00 Hrs. (https://www.eproc.bihar.gov.in)
4.	Submission of EMD in Hard copy/Original	Before the time of opening of technical bid (Muzaffarpur Institute of Technology, Muzaffarpur, Bihar, India. Pin – 842003)
5.	Date & time for opening of Technical Bid	21-12-2018 Up to 15.00 Hrs. (https://www.eproc.bihar.gov.in)
6	Contact person/Nodal Officer for queries	Mohit Kumar, G-05, Department of Electronics and Communication, MIT Muzaffarpur Email : mohitkumar@mitmuzaffarpur.org Contact no. 8984565472
7.	Financial Bid Opening Date and Time	Date to be announced later by competent authority.

- Detailed descriptions of the item and instructions for submitting your offer can be downloaded from e-Procurement Portal (<https://www.eproc.bihar.gov.in>).
- Tender Fee/Cost has to be paid online during requesting of the tender through e-Procurement Portal (<https://www.eproc.bihar.gov.in>).
- Tender Processing Fee (TPF) amount to be paid through e-Payment mode (i.e. NEFT, Internet Banking, Credit / Debit Card) only.
- Bids along with necessary online payments (Tender Processing Fee) must be submitted through e-Procurement Portal (<https://www.eproc.bihar.gov.in>) before the date and time specified in the NIT/RFP. The department/Tendering Authority doesn't take any responsibility for the delay / Non Submission of Tender / Non Reconciliation of online Payment caused due to Non availability of Internet Connection, Network Traffic/ Holidays or any other reason."
- The bidders shall submit their eligibility and qualification details, Certificates as mentioned in section etc., in the online standard formats given in e-Procurement Portal (<https://www.eproc.bihar.gov.in>) at the respective stage only.
- The bidders shall upload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility criteria / technical bids and other certificate /documents in the e-Procurement Portal (<https://www.eproc.bihar.gov.in>).
- The bidder shall digitally sign on the supporting statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity. The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document.
- For support related to e-tendering process, bidders may contact at following address "e-Procurement HELP DESK First Floor, M/22, Bank of India Building, Road No-25, Sri Krishna Nagar, Patna- 800001. Ph. No: **0612-2523006**, Mob- **7542028164**" or may visit the link "Vendor Info" at (<https://www.eproc.bihar.gov.in>).
- **Corrigendum/ Addendum**, if any, will be published on the e-Procurement, Bihar <https://www.eproc.bihar.gov.in> itself.


 Principal
 Muzaffarpur Institute of Technology
 Muzaffarpur

e-Procurement Standing Instruction

1. **Muzaffarpur Institute of Technology**, invites under two bid system **Technical and Financial** from reputed **organizations/companies** for Setting up “COE” for Building & Industrial Automation Scope of Work :- Supply, Installation, Testing, Commissioning, Training & Maintenance of industrial Automation & Building Automation Labs to be set up in Centre of Excellence at MIT Muzaffarpur
2. The bidder must have Class II Digital Signature Certificate (DSC) and e-Tendering User-id of the e-Procurement website (<https://www.eproc.bihar.gov.in>) for submission of e-Bid.
3. The payment of Tender Processing Fee needs to be paid through e-Payment mode only.
4. Bids along with necessary online payments must be submitted through e-Procurement Portal (<https://www.eproc.bihar.gov.in>) before the date and time specified in the NIT / RFP. The department / Tendering Authority don't take any responsibility for the delay / Non Submission of Tender / Non Reconciliation of online Payment caused due to Non availability of Internet Connection, Network Traffic / Holidays or any other reason.
6. The bidders shall upload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility criteria / technical bids and other certificate / documents in the e-Procurement Portal (<https://www.eproc.bihar.gov.in>) only.
7. The bidder shall digitally sign the supporting documents / certificates, uploaded by him, owning responsibility for their correctness / authenticity. The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document.
8. The Financial Bid of the successful bidders shall be opened on a suitable date, which will be duly informed later on. The Technical Bid and Financial Bid needs to be filled, uploaded and submitted through e-Procurement Portal www.eproc.bihar.gov.in on or before **20-12-2018 by 15.00 hrs.**
9. The authority reserves the right to reject or cancel the tender or any part thereof without assigning any reasons thereof.
10. Corrigendum/ Addendum, if any, will be published on e-Procurement, Bihar <https://www.eproc.bihar.gov.in> itself.
11. Bidders are advised to keep updated their e-Procurement profile with correct / valid email id as all important activity / events emailed to their registered email as per e-Procurement Portal.

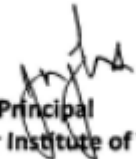

Principal
Muzaffarpur Institute of Technology
Muzaffarpur

INVITATION FOR BID (IFB) & NOTICE INVITING BID (NIB)

Name & Address of the Procuring Entity	Muzaffarpur Institute of Technology, Muzaffarpur, Bihar, India. Pin – 842003.
Name & Address of the Project Officer In- charge (POIC)	Mohit Kumar, G-05, Department of Electronics and Communication, MIT Muzaffarpur Email: mohitkumar@mitmuzaffarpur.org Contact no. 8984565472
Subject Matter of Procurement	Setting up “Center of Excellence” for Building & Industrial Automation
Bid Procedure	Two Bid Open Tender
Bid Evaluation Criteria (Selection Method)	Least Cost Based Selection (LCBS) - L1
Websites for downloading Bidding Document, Corrigendum’s, Addendums etc.	https://www.eproc.bihar.gov.in/BELTRON
Estimated Procurement Cost	INR 7,500,000/- (75 Lacs for each Lab) in total of INR 150,00000/- (150 Lacs only)
Bid Security and Mode of Payment	Rs. 1,50,000/- (Rupees One Lakh Fifty Thousand Only) for each Lab in Demand Draft in favor of “Principal, Muzaffarpur Institute of Technology, Muzaffarpur,” payable at “Muzaffarpur”
Period of Sale of Bidding Document (Start Date)	29 - 11- 2018
End Date for the submission of Bids	20-12-2018
Submission of Demand Draft for Bid Security	21-12-2018
Date/ Time/ of Technical Bid Opening	21-12-2018/ 03:00 PM
Date/ Time/ of Financial Bid Opening	To be notified later
Bid Validity	180 Days

Note:

- 1) Bidder (authorized signatory) shall submit their offer on-line in Electronic formats both for technical and financial proposal.
- 2) * In case, any of the bidders fails to physically submit the Demand Draft for EMD, up to 03:00 PM on **21st December 2018**, its Bid shall not be accepted. The Demand Draft for Bid Security should be drawn in favor of "Principal, Muzaffarpur Institute of Technology, Muzaffarpur," payable at "Muzaffarpur" from any Scheduled Commercial Bank.
- 3) To participate in online bidding process, Bidders must procure a Digital Signature Certificate (Type III / II) as per Information Technology Act-2000 using which they can digitally sign their electronic bids. Bidders can procure the same from any CCA approved certifying agency, i.e. TCS, Safecrypt, Ncode etc. Bidders who already have a valid Digital Signature Certificate (DSC) need not procure a new DSC.
- 4) The authorities will not be responsible for delay in online submission due to any reason. For this, bidders are requested to upload the complete bid well advance in time so as to avoid issues like slow speed; choking of web site due to heavy load or any other unforeseen problems at the last moment.
- 5) The procuring entity reserves the complete right to cancel the bid process and reject any or all of the Bids.
- 6) No contractual obligation whatsoever shall arise from the bidding document/ bidding process unless and until a formal contract is signed and executed between the procuring entity and the successful bidder.


Principal
Muzaffarpur Institute of Technology
Muzaffarpur

2. PROJECT PROFILE AND BACKGROUND INFORMATION

A centre of excellence (COE) is a team, a shared facility or an entity that provides leadership, best practices, research, support and/or training for a focus area. The focus area might be a technology, a business concept, a skill or a broad area of study. A centre of excellence may also be aimed at revitalizing stalled initiatives.

Within an organization, a centre of excellence may refer to a group of people, a department or a shared facility. It may also be known as a competency centre or a capability centre. The term may also refer to a network of institutions collaborating with each other to pursue excellence in a particular area.

Muzaffarpur Institute of Technology proposes to establish center of Excellence (COE) to develop skill resources for Indian & global employment in Building Automation & Industrial Automation field.

COE will serve the following purpose:

- Established labs in nearly real plant environment.
- To create Master Trainers/ Trainers
- Primary Survey and Statistical Analysis, for job demand aggregation.
- Research to meet out Technological Up-gradation in view of the Industry 4.0 requirements.

3. PRE-QUALIFICATION/ ELIGIBILITY CRITERIA

(1) A bidder participating in the procurement process shall possess the following minimum pre-qualification/ eligibility criteria.

S.No.	Basic Requirement	Specific Requirements	Documents Required
1	Legal Entity	The bidder should be a Registered Proprietorship firm/ A partnership firm registered under Indian Partnership Act, 1932/ A company registered under Indian Companies Act, 1956/ A Limited Liability partnership registered under Indian Limited Liability Partnership Act, 2008.	- Copy of valid Registration Certificates - Copy of Certificates of incorporation
2	Financial: Turnover	Annual Turnover of the bidder from during each of the last three financial years should be Minimum Rs 600 lacs out of which 50% should be in Instrumentation field and 50% should be in Automation field	CA Certificate with CA's Registration Number/ Seal
3	Financial: Net Worth	The net worth of the bidder as per last published audited Balance Sheet i.e. for the year 2017-2018, should be Positive.	CA Certificate with CA's Registration Number/ Seal
4	Certification	The bidder should be ISO 9001:2008 ISO /IEC20000-1:2011	Copy of valid certificates
5	Tax registration and clearance	The bidder should have a registered number of 1. GST 2. Income Tax / Pan number.	Copies of relevant certificates of registration
6	Mandatory Undertaking	Bidder should: - a) not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, and must not be the subject of legal proceedings for any of the foregoing reasons; b) not have, and their directors and	A Self certified certificate on the letter head

		<p>officers not have, been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;</p> <p>c) not have a conflict of interest in the procurement in question as specified in the bidding document.</p> <p>d) comply with the code of integrity as specified in the bidding document.</p>	
7	Completion Period	The bidder should do the complete delivery and installation of the corresponding labs within 45 days of award of work	A Self certified certificate on the letter head

(2) In addition to the provisions regarding the qualifications of the bidders as set out in (1) above:-

- a) the procuring entity shall disqualify a bidder as per the provisions under “Clause: Exclusion/ Disqualification of bids in Chapter-5: ITB”; and
- b) the procuring entity may require a bidder, who was pre-qualified, to demonstrate its qualifications again in accordance with the same criteria used to pre-qualify such bidder. The procuring entity shall disqualify any bidder that fails to demonstrate its qualifications again, if requested to do so. The procuring entity shall promptly notify each bidder requested to demonstrate its qualifications again as to whether or not the bidder has done so to the satisfaction of the procuring entity.

4. Brief Technical Solution:

Package – I : INDUSTRIAL AUTOMATION LAB

PC-PLC-HMI BASED MUTIPROCESS CONTROL SYSTEM			
S.No	Description (PLC should be MITSUBUSHI/SIEMENS/SCHNIDER/ALLEN BRADLEY ETC.	Qty in number	Specification
1	Patch Panel	2	AI-4,AO-2,DI-14, DO-10
2	PLC WIITH ETHERNET 24VDC	2	PLC - 10AI, 10AO, 12DI, 12DO
3	CARD	2	EXPANSION 4AI , 24VDC INPUT AND 4-20MA OUTPUT
4	CARD	2	EXPANSION 4AO , 24VDC INPUT AND 4-20MA OUTPUT
5	DOCK	2	IO INTERFACE MODULE
6	HMI	2	HMI 7" - ETHERNET
7	ETHERNET CABLE (5 MTR)	2	PLC TO HMI
8	PLC PROGRAMING SOWFARE	1	PLC PROGRAMING SOFTWARE
9	SCADA Software		
10	ETHERNET SWITCH	2	EITHERNET SWITCH 8 PORT
11	SMPS	2	230VAC/24VDC, 4.5 AMP
12	RELAY CARD	4	8 CHANNEL, 1C/O, 24VDC (RC1-2)
13	MCB	6	6A SP MCB, 10KA
15	MCB	2	16A, DP MCB, 10KA (MCB1)
16	MEDIA CONVERTOR WITH PATCH CORD	4	MEDIA CONVERTOR
17	FAN	2	COOLING FAN 6", 220VAC
18	FILTER	4	FILTER 8"
19	PANEL LIGHT	2	220V AC
20	LIMIT SWITCH	2	DOOR LIMIT SWITCH (1NO+1NC)
21	SOCKET	4	5A SWITCH SOCKET
22	OFC+LIU	2	6-Port

Instruments Consisting of following items			
1	VFD Drive	1	Motor power kW 0.37 Kw, Motor power hp 0.5 hp, supply voltage 380...500 V (- 15...10 %), Supply frequency 50...60 Hz, Network number of phases 3 phases
2	Motor	1	3 PH,50HZ Freq, Power - 0.37/0.50, current : 1.20, size 25X25 mm
3	Motor	1	1 ph, 50Hz, current - 2.5 Amp, voltage 220v +6%, Power 0.37/0.50KW/HP

4	CABLES, LUGS, CONNECTOR, NUTS, BOLTS, TC, PVC BATTEN, ELECTRICAL CABLE, INSTRUMENTATION CABLE, GLANDS, FRAMES etc & other accessories as per requirement to complete installation & Commissioning.		
5	level sensor	1	Radar /Ultrasonic type, Measuring range up to 15 m (49.21 ft) Deviation ±2 mm Process fitting : Thread G1½, mounting strap, compression flanges from DN 80, 3" Process pressure : -1 ... +2 bar/-100 ... +200 kPa(-14.5 ... +29.0 psig) Process temperature : -40 ... +80 °C (-40 ... +176 °F)Ambient, storage and transport temperature : -40 ... +80 °C (-40 ... +176 °F) Operating voltage 9 ... 32 V DC
6	Flow meter	1	1. Magnetic type flow meter. 2. flow type : liquid 3. operating voltage : 220Vac 4. output signal : 4-20Ma 5. End connection : flange type 6. Digital flow display
7	I/P Convertor	2	Input: 4-20 mA, Output: 3-15 psi, Connection: ¼" NPT / BSP
8	P/I Convertor	2	Input single (Pneumatic): 3 ...15psi, output: 4-20mA Ambient temp. : -40 to 85 °C
9	Air filter regulator	3	1. Pressure range- 0 - 10 bar, 2. Pressure Adjustment-Manual Knob / 'T' Handle rotation & lock-in position. 3. Max. Operating Temp: 50 °C 4. Operating medium : Compressed Air
10	Globe type Pneumatic control valve	2	1. Medica – liquid 2. Input voltage: 24vAC 3. Output current: 4-20ma 4. End connection: flanged type 5. Positioner + Actuator
11	Transparent Level Gauge	1	1. material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc. 2. visible length : 90...3510 mm 3. vessel connection : ¾" or 1" flanged 4. Pressure range : 0 to 10 bar liquid 5. Temperature : 10 to 50 C

12	PH Sensor	1	Measuring Range: 0 to 14.00 pH Temperature Range:-5 to +95 °C (23 to 203 °F) Pressure Range : 0 to 100 psig operating voltage : 220vac output signal : 4-20ma display device : digital
13	Pressure gauge	2	manual analog pressure gauge
14	RTD- PT 100	2	operating voltage - 24vdc , output signal - 4-20ma
15	Level Tank	1	1. Material -SS 304 2. Height : 1100 mm 3. Thickness - 5mm
16	Ph tank	3	1. Material -SS 304 2. Height : 400 mm 3. Thickness - 3mm
17	Pneumatic Actuated On/Off Ball Valve 1'inch	4	valve type : Ball valve, Nozzle size : 25NB, fluid : water / chemical, Body : WCB Ball: SS304
18	Air compressor	1	1. Tank capacity : 25 Liters, Discharge: 2 CFM, Motor: 1 HP, 230 V AC Operated, Working pressure: 5-6 kg/cm2
19	Cascade control	1 nos.	Electronic PID Controller 2 no. Single input PID (1 NO.) & Dual input (1 No.),for Cascade and Ratio, With Serial PC Interface (ASCII Protocol) USB / Ethernet / RS 485 / RS 232,Cut Out Size: 92mmx92mmx144mm, Input: 4-20 mA, Output: 4-20 mA, Display: Dual for PV & SP, Bar graph display for Output & deviation. Hi-Low Alarm annunciations.
20	Ratio control	1 nos.	
21	single loop controller	1 nos.	Supply power : 24Vdc +10%-15%(ripple 1%or less), Consumption current : Power for main unit 24VDC-app.0.2APower for DI/O 24VDC 50mA or less, AI-6,A2,DI-3,DO-5
22	Position sensor	2 nos.	operating voltage - 24vdc , output signal - 4-20ma
23	limit switch	2 nos.	15A rating , With Common , NO & NC terminal
Mechanical/Electrical & Safety tool kit			
1	Hard hat	1 nos.	Standard
2	Boots	1 nos.	Standard
3	Gloves	1 nos.	Standard
4	safety net	1 nos.	Standard
5	smoke mask	1 nos.	Standard

6	Goggles	1 nos.	Standard
7	Fire blanket	1 nos.	Standard
8	first aid kit	1 nos.	Standard
9	Screw driver set	1 nos.	Standard
10	Plier	2 nos.	Standard
11	Nose plier	2 nos.	Standard
12	wire cutter	2 nos.	Standard
13	wire stripper	2 nos.	Standard
14	Pipe wrench	2 nos.	Standard
15	side wrench	2 nos.	Standard
16	Small hacksaw	2 nos.	Standard
17	file set	2 nos.	Standard
18	Wodden hammer	2 nos.	Standard
19	Iron hammer	2 nos.	Standard
20	Megger	1 nos.	Standard
21	Insulation tape	20 nos	Standard
22	Fire Extinguisher (ABC Powder Type 2 Kg)	3 nos.	2 kg
23	Teflon tape	20 nos	Standard
24	tester	5 nos	Standard
25	crimping tool wire lugs	2 nos.	Standard
26	crimping tool Ethernet connector	2 nos.	Standard
27	Drill Machine	2 nos.	Standard
28	Digital Multimeter 3x1/2	2 nos.	Display : LCD Display(Backlit) Counts : 2000 AC Voltage Range : 0 to 600 V AC Voltage Accuracy : + - 1.2% + 10 DC Voltage Range : 200mV - 600 V

STUDY OF VARIOUS TYPES OF ACTUATORS

1	Pneumatic Control Valve-	1	Size: ½", Type: Two way Globe type (Air to Close), Cv: 0.2 / 5 US GPM, with diaphragm actuator, Linear/ equal % characteristics Flange connection: PCD: 60 mm, ID: 16 mm, OD: 90 mm
2	Air Manifold	1	6 ports, ¼" Connection
3	Double Acting Cylinder	1	Mounting: Foot , 1 no. ¼" connection
4	Single Acting Cylinder	1	Mounting: Foot , 1 no. ¼" connection
5	3/2 way Hand Lever Valve	1	1/4" Connection, Hand Lever Operated Valve
6	5/2 way Hand Lever Valve	1	1/4" Connection, Hand Lever Operated Valve
7	Precision APR	1	¼" connection, O/P 3-15 psi, with Gauge
8	FRL Unit	1	¼" connection, O/P 0-10Kg/cm2 with Gauge
9	Pneumatic Control Valve	1	
10	Pneumatic Motor	1	Unidirectional, Air pressure: 0-90 psi

11	Motorized Control Valve (Linear Electric Actuator)	1	Motorized Actuator: Input: 4-20mA, Valve Size: ½", Type: Two way Globe type, Cv: 0.2 / 5 US GPM, with diaphragm actuator, Linear / equal % characteristics, Flange connection: PCD: 60 mm, ID: 16 mm, OD: 90 mm
12	Servo Controller	1	Input: 4-20mA, Output: 4-20mA, F.B.: 4-20mA, Supply: 1ϕ230 V AC
13	Current Source	1	Supply : 230 V AC, Output: 4-20mA
14	Air Compressor	1	Tank capacity: 25 Liters, Discharge: 2 CFM, Motor: 1H.P.230 V AC Operated, Working pressure: 5-6 kg/cm2
Other Items List			
1	Display Unit	1	55" Display ✓ Screen Size: 55 Inches ✓ Connectivity: HDMI, USB ✓ Resolution: 1366x768 ✓ Number of Speakers: 2 ✓ Color: Black ✓ Display Features: HD Features
2	Laptop	2	Base model with WINDOW PROFESSIONAL OS, MS OFFICE and application software RAM: 4 GB DDR3 Storage: 500 GB HDD Screen: 14" and above
CUT SECTION OF CONTROL VALVE			
1	Size of valves: 1"/½".	1	Cut section of different type of valves such as, Ball Valve, Globe Valve, Gate Valve, Butterfly valve, Horizontal NRV, Vertical NRV, Needle Valve, Flow Control Valve, Solenoid Valve, Pneumatic Diaphragm type Equal % Valve.
SWITCHES AND RELAYS SETUP			
1	MCB	1	Single pole, 6 A
2	Mains Rocker switch	1	Red, Illuminated Switch
3	2 C/O Glass type Relay	1	24V DC, 2C/o Relay with base mounted on DIN Rail Channel
4	Contactora	1	Coil Supply: 230VAC
5	Timer	1	Coil Supply -230VAC, 1 C/O,
6	Pulse counter	1	24VDC, 2Wire Connection counter with Reset switch
7	PCB mount Relay	1	24VDC,1C/O with base & PCB
8	1 C/O Solder type relay	1	24VDC operated ,1C/O
9	Solenoid Valve	1	24VDC operated
10	Micro limit switch	1	24VDC , With Common , NO & NC terminal

11	Thermostat	1	Capillary type, 30 to 110°C, 2 wire connection , Pot for Manual setting
12	Limit switch	1	15A rating , With Common , NO & NC terminal
13	Float switch	1	Magnetic type, 2Wire
14	Proximity switch	1	PNP, 24 VDC operated, Sensing distance -0-6mm, NO type
15	Optical switch	1	PNP, 24 VDC, 3 wire, Sensing dist. 0-10mm, NO type
16	Selector Switch	1	Black Color, 2 positions, With Element
17	Push button with indicator & Element	1	TEK 2ALRF, 230VAC Red Element – TEK S-1 NO
18	Push button w/o indicator & Element	1	TEK 2AF, 24VDC Element – TEK S-1 NO
19	Push button w/o indicator with Element & latching attachment	1	Element – TEK S-1 NO, Latching attachment – TEK 2PPM
20	Panel key switch	1	2 position, with key
21	Panel door switch	1	24 VDC, NO, white color
22	1 c/o Push button	1	Red Push button , 4A, with Common , NO& NC terminal
23	Momentary switch	1	Size-16mm, Yellow, 24VDC,
24	Toggle switch	1	6A/250V, SPDT
25	Power supply	1	I/P supply 230VAC O/P supply 24VDC, 3A
26	Indicating lamps	25	16.5 mm cut out, 24VDC Amber
27	3 pin Top	1	6A , Anchor Make
28	Reed Switch	1	I/P 24VDC, 2 Wire
29	Capacitive Switch	1	I/P 24VDC , PNP , 3Wire

Package – II : BUILDING AUTOMATION LAB

S.No	Equipment name	Qty in Number	Specification
1	Secure Building - Access control, CCTV and Public address system Kit	1 nos.	Dome camera, Bullet camera, IP Camera, Access control system, PA System, NVR, Display Unit and accessories complete kit
2	Safe Building - Addressable Fire security Kit	1 nos.	complete Kit
3	Lighting / A.C. control with Motion sensor	4 nos	Type - PIR Motion detector Output Load 300W (Resistive) Detection Range 8m (360°) Light Control <10 to 2000 lux Power Supply 230V AC Dimensions (Sensor) 28mmØ Dimensions (Module) 50 x 40mmØ
4	HVAC System	1 Set	
5	PLC/SCADA Setup with PLC/VFD Drives/HMI/Application Software/Servers tp Plus I/P, Digital I/P, Analog I/P, Ethernet Switch/Display unit	1 Set	
6	Slip Ring Motor, Squirrel Cage Motor, DOL Started, Star & Delta Starter, Genpet	1 Set	
7	Switch & Relay setup	1 Set	
IT Equipment list			
1	Desktop/Laptop	1 nos.	with 4 GB RAM, 500 GB Hard Disk, Windows Professional Operating System, MS Office
2	AutoCad	1 nos.	Software
3	Inkjet / Laser Printer	1 nos.	Monochrome Inkjet / Laser, A4 size preferable

4	2 KVA UPS	1 nos.	Input Voltage: 220 V Output Voltage: 220 V Input Frequency: 50-60 Output Frequency: 50-60
5	HDMI/SVG Cable	2 nos.	
6	SMPS	1 nos.	Input voltage -240vAC and output voltage - 12vdc, current - 5 Amp.
7	IBMS Software	1 nos.	Software
Mechanical/Electrical & Safety items			
1	Hard hat	1 nos.	standard
2	Boots	1 nos.	standard
3	Gloves	1 nos.	standard
4	Safety Net	1 nos.	standard
5	Smoke mask	1 nos.	standard
6	Goggles	1 nos.	standard
7	Fire blanket	1 nos.	standard
8	first aid kit	1 nos.	standard
9	Screw driver set	1 nos.	standard
10	Plier	2 nos.	standard
11	Nose plier	2 nos.	standard
12	wire cutter	2 nos.	standard
13	wire stripper	2 nos.	standard
14	Pipe wrench	2 nos.	standard
15	side wrench	2 nos.	standard

16	Small hacksaw	2 nos.	standard
17	file set	2 nos.	standard
18	Wooden hammer	2 nos.	standard
19	Iron hammer	2 nos.	standard
20	Megger	1 nos.	standard
21	Insulation tape	20 nos	standard
22	Fire Extinguisher (ABC Powder Type 2 Kg)	3 nos.	2 kg
23	Teflon tape	20 nos	standard
24	Tester	5 nos	standard
25	crimping tool wire lugs	2 nos.	standard
26	crimping tool Ethernet connector	2 nos.	standard
27	Digital Multimeter 3x1/2	2 nos.	Display : LCD Display(Backlit) Counts : 2000 AC Voltage Range : 0 to 600 V AC Voltage Accuracy : + 1.2% + 10 DC Voltage Range : 200mV – 600V
28	3-1/2 digit DMM	1 nos.	Display : LCD Display(Backlit) Counts : 2000 AC Voltage Range : 0 to 600 V AC Voltage Accuracy : ?1.2% + 10 DC Voltage Range : 200mV - 600 V
29	3-1/2 digit Clipon / Tong tester	1 nos.	Jaw Size: 50 millimeter or 2.0 inch Tests AC or DC voltage, AC current and resistance Diode check and continuity test Salient features: AC 1000 Amp. Clamp Meter AC 750 Volt &

			DC 1000 Volt Resistance & Continuity Buzzer 2000 Count Display & Jaw Size 50 mm Data Hold & Manual Range Selection 1 X 9V. Battery
30	Megger 1000V	1 nos.	P54 rated 2 and 3 point testing Selectable 25 V or 50 V output Complete with lead and stake kit Simple one button operation
31	Lugs	2 Packet	Pin type 1. High quality copper and PVC insulator 2. Lead-free tin plating for better conductivity 3. Size - 0.5 sq mm, 1 sp mm
32	Crimping tools	1	RJ-45 connector
33	Relays	1	Operating voltage-24vDc
34	Power cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (4 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
35	Signal cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (2 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
36	Coaxial cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (4 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
37	Flat cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (2 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow

38	LAN cable	50 Mtrs	Cat-6 cable
39	Ferrules	5 Mtrs	Nylon , 0.5,1 sq mm
41	Cable ties	5 packet	Nylone , cable tie length - 12mm,thickness- 0.5mm ,temperature rating -40 to 85 C
42	Cable Glands	20	.Temperature Static : -40 to +100 ,Dynamic : -20 to +8 C 2. Protection Class : IP 68-5 bar 3. material : Body - Polyamide, Sealing : Neoprene
43	Cable trays	10 Mtrs	Material : MS, Size 2"/4"/8"/12"
44	Sleeves	1 Mtrs	For Wires, cables and accessories
45	LAN connectors	50	Connector Type: RJ-45 , 8 pin type
46	Drill Machine	2	Standard

5. INSTRUCTION TO BIDDERS (ITB)

1) Sale of Bidding/ Tender Documents

- a) The sale of bidding documents shall be commenced from the date of publication of Notice Inviting Bids (NIB) and shall be stopped one day prior to the date of opening of Bid. The complete bidding document shall also be placed on the State Public Procurement Portal and e-Procurement portal <https://www.eproc.bihar.gov.in/BELTRON>. The prospective bidders shall be permitted to download the bidding document from the websites and pay its price while submitting the Bid to the procuring entity.
- b) The bidding documents shall be made available to any prospective bidder who pays the price for it by bank demand draft
- c) Bidding documents purchased by Principal of any concern may be used by its authorized representative.

2) Changes in the Bidding Document

- a) At any time, prior to the deadline for submission of Bids, the procuring entity may for any reason, whether on its own initiative or as a result of a request for clarification by a bidder, modify the bidding documents by issuing an addendum in accordance with the provisions below.
- b) In case, any modification is made to the bidding document or any clarification is issued which materially affects the terms contained in the bidding document, the procuring entity shall publish such modification or clarification in the same manner as the publication of the initial bidding document.
- c) In case, a clarification or modification is issued to the bidding document, the procuring entity may, prior to the last date for submission of Bids, extend such time limit in order to allow the bidders sufficient time to take into account the clarification or modification, as the case may be, while submitting their Bids.
- d) Any bidder, who has submitted his Bid in response to the original invitation, shall have the opportunity to modify or re-submit it, as the case may be, within the period of time originally allotted or such extended time as may be allowed for submission of Bids, when changes are made to the bidding document by the procuring entity: Provided that the Bid last submitted or the Bid as modified by the bidder shall be considered for evaluation.

3) Period of Validity of Bids

- a) Bids submitted by the bidders shall remain valid during the period specified in the NIB/ bidding document. A Bid valid for a shorter period may be rejected by the procuring entity as non-responsive Bid.
- b) Prior to the expiry of the period of validity of Bids, the procuring entity, in exceptional circumstances, may request the bidders to extend the bid validity period for an additional specified period of time. A bidder may refuse the request and such refusal shall be treated as withdrawal of Bid and in such circumstances bid security shall not be forfeited.
- c) Bidders that agree to an extension of the period of validity of their Bids shall extend or get extended the period of validity of bid securities submitted by them or submit new bid securities to cover the extended period of validity of their bids. A bidder whose bid security is not extended, or that has not submitted a new bid security, is considered to have refused the request to extend the period of validity of its Bid.

5) Format and Signing of Bids

- a) Bidders must submit their bids online at eProcurement portal i.e. <http://eproc.bihar.gov.in/BELTRON>
- b) All the documents uploaded should be digitally signed with the DSC of authorized signatory.
- c) A Two part/ cover system shall be followed for the Bid: -
 - a. Technical Bid, including fee details, eligibility & technical documents
 - b. Financial Bid

6) Cost & Language of Bidding

- a) The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the procuring entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- b) The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the procuring entity, shall be written only in English Language. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in

English/ Hindi language, in which case, for purposes of interpretation of the Bid, such translation shall govern.

- 7 Bid Security (EMD):** Every bidder, if not exempted, participating in the procurement process will be required to furnish the bid security as specified in the NIB.
- a) In lieu of bid security, a bid securing declaration shall be taken from Departments of the State Government, Undertakings, Corporations, Autonomous bodies, Registered Societies and Cooperative Societies which are owned or controlled or managed by the State Government and Government Undertakings of the Central Government. MSME registered with NSIC are exempted for depositing EMD
 - b) Bid security instrument or a bid securing declaration shall necessarily accompany the technical bid.
 - c) Bid security of a bidder lying with the procuring entity in respect of other bids awaiting decision shall not be adjusted towards bid security for the fresh bids. The bid security originally deposited may, however, be taken into consideration in case bids are re-invited.
 - d) The bid security may be given in the form of a demand draft, in specified format, of a scheduled bank. The bid security must remain valid thirty days beyond the original or extended validity period of the bid.
 - e) The issuer of the bid security and the confirmer, if any, of the bid security, as well as the form and terms of the bid security, must be acceptable to the procuring entity.
 - f) Prior to presenting a submission, a bidder may request the procuring entity to confirm the acceptability of proposed issuer of a bid security or of a proposed confirmer, if required. The procuring entity shall respond promptly to such a request.
 - g) The bid security of unsuccessful bidders shall be refunded soon after final acceptance of successful bid and signing of Agreement and submitting performance security.
 - h) The Bid security taken from a bidder shall be forfeited, including the interest, if any, in the following cases, namely: -
 - a. when the bidder withdraws or modifies its bid after opening of bids;
 - b. when the bidder does not execute the agreement, if any, after placement of supply/ work order within the specified period;
 - c. when the bidder fails to commence the supply of the goods or service or execute work as per supply/ work order within the time specified;
 - d. when the bidder does not deposit the performance security within specified period after the supply/ work order is placed; and
 - e. if the bidder breaches any provision of code of integrity, prescribed for bidders, specified in the bidding document.
 - i) Notice will be given to the bidder with reasonable time before bid security (EMD) deposited is forfeited.
 - j) No interest shall be payable on the bid security (EMD).
 - k) In case of the successful bidder, the amount of bid security may be adjusted in arriving at the amount of the Performance Security, or refunded if the successful bidder furnishes the full amount of performance security.
 - l) The procuring entity shall promptly return the bid security after the earliest of the following events, namely:-
 - a. the expiry of validity of bid security;
 - b. the execution of agreement for procurement and performance security is furnished by the successful bidder

6. FINANCIAL BID

LIST OF GOODS & SERVICES AND DELIVERY SCHEDULE.

Package I : Setting up of Industrial Automation Lab Prices

PC-PLC-HMI BASED MUTIPROCESS CONTROL SYSTEM				
S.No	Description (PLC should be MITSUBUSHI/SIEMENS/SCHNIDER/ALLEN BRADLEY ETC.	Qty in number	Specification	Price
1	Patch Panel	2	AI-4,AO-2,DI-14, DO-10 (For Training Purpose)	
2	PLC WIITH ETHERNET 24VDC	2	PLC - 10AI, 10AO, 12DI, 12DO	
3	CARD	2	EXPANSION 4AI , 24VDC INPUT AND 4-20MA OUTPUT	
4	CARD	2	EXPANSION 4AO , 24VDC INPUT AND 4-20MA OUTPUT	
5	DOCK	2	IO INTERFACE MODULE	
6	HMI	2	HMI 7" - ETHERNET	
7	ETHERNET CABLE (5 MTR)	2	PLC TO HMI	
8	PLC PROGRAMING SOWFARE	1	PLC PROGRAMING SOFTWARE	
9	SCADA Software			
10	ETHERNET SWITCH	2	EITHERNET SWITCH 8 PORT	
11	SMPS	2	230VAC/24VDC, 4.5 AMP	
12	RELAY CARD	4	8 CHANNEL, 1C/O, 24VDC (RC1-2)	
13	MCB	6	6A SP MCB, 10KA	
15	MCB	2	16A, DP MCB, 10KA (MCB1)	
16	MEDIA CONVERTOR WITH PATCH CORD	4	MEDIA CONVERTOR	
17	FAN	2	COOLING FAN 6", 220VAC	
18	FILTER	4	FILTER 8"	
19	PANEL LIGHT	2	220V AC	
20	LIMIT SWITCH	2	DOOR LIMIT SWITCH (1NO+1NC)	
21	SOCKET	4	5A SWITCH SOCKET	
22	OFC+LIU	2	6-Port	

Field Instruments Consisting of following items				
1	VFD Drive	1	Motor power kW 0.37 Kw, Motor power hp 0.5 hp, supply voltage 380...500 V (- 15...10 %), Supply frequency 50...60 Hz, Network number of phases 3 phases	
2	Motor	1	3 PH,50HZ Freq, Power - 0.37/0.50, current : 1.20, size 25X25 mm	

3	Motor	1	1 ph, 50Hz, current - 2.5 Amp, voltage 220v +6%, Power 0.37/0.50KW/HP
4	CABLES, LUGS, CONNECTOR, NUTS, BOLTS, TC, PVC BATTEN, ELECTRICAL CABLE, INSTRUMENTATION CABLE, GLANDS, FRAMES etc & other accessories as per requirement to complete installation & Commissioning.		
5	level sensor	1	Radar /Ultrasonic type, Measuring range up to 15 m (49.21 ft) Deviation ±2 mm Process fitting : Thread G1½, mounting strap, compression flanges from DN 80, 3" Process pressure : -1 ... +2 bar/-100 ... +200 kPa(-14.5 ... +29.0 psig) Process temperature : -40 ... +80 °C (-40 ... +176 °F) Ambient, storage and transport temperature : -40 ... +80 °C (-40 ... +176 °F) Operating voltage 9 ... 32 V DC
6	Flow meter	1	1. Magnetic type flow meter. 2. flow type : liquid 3. operating voltage : 220Vac 4. output signal : 4-20Ma 5. End connection : flange type 6. Digital flow display
7	I/P Convertor	2	Input: 4-20 mA, Output: 3-15 psi, Connection: ¼" NPT / BSP
8	P/I Convertor	2	Input singla(Pneumatic) : 3 ...15psi, output : 4-20mA Ambient temp. : -40 to 85 °C
9	Air filter regulator	3	1. Pressure range- 0 - 10 bar , 2. Pressure Adjustment-Manual Knob / 'T' Handle rotation & lock-in position. 3. Max.Operating Temp : 50 °C 4. Operating medium : Compressed Air
10	Globe type Pneumatic control valve	2	1. Medica - liquid 2. input voltage : 24vAC 3. Output current : 4-20ma 4. End connection : flanged type 5. Positioner + Actuator

11	Transparent Level Gauge	1	<p>1. material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.</p> <p>2. visible length : 90...3510 mm</p> <p>3. vessel connection : ¾" or 1" flanged</p> <p>4. Pressure range : 0 to 10 bar liquid</p> <p>5. Temperature : 10 to 50 C</p>	
12	PH Sensor	1	<p>Measuring Range: 0 to 14.00 pH</p> <p>Temperature Range:-5 to +95 °C (23 to 203 °F)</p> <p>Pressure Range : 0 to 100 psig</p> <p>operating voltage : 220vac</p> <p>output signal : 4-20ma</p> <p>display device : digital</p>	
13	Pressure gauge	2	manual analog pressure gauge	
14	RTD- PT 100	2	operating voltage - 24vdc , output signal - 4-20ma	
15	Level Tank	1	<p>1. Material -SS 304</p> <p>2. Height : 1100 mm</p> <p>3. Thickness - 5mm</p>	
16	Ph tank	3	<p>1. Material -SS 304</p> <p>2. Height : 400 mm</p> <p>3. Thickness - 3mm</p>	
17	Pneumatic Actuated On/Off Ball Valve 1'inch	4	<p>valve type : Ball valve, Nozzle size : 25NB, fluid : water / chemical, Body : WCB</p> <p>Ball: SS304</p>	
18	Air compressor	1	<p>1. Tank capacity : 25 Liters, Discharge: 2 CFM, Motor: 1 HP, 230 V AC Operated, Working pressure: 5-6 kg/cm2</p>	
19	Cascade control	1 nos.	<p>Electronic PID Controller</p> <p>2 no. Single input PID (1 NO.) & Dual input (1 No.),for Cascade and Ratio, With Serial PC Interface (ASCII Protocol) USB / Ethernet / RS 485 / RS 232,Cut Out Size: 92mmx92mmx144mm, Input: 4-20 mA,Output: 4-20 mA,Display: Dual for PV & SP, Bar graph display for Output & deviation.Hi-Low Alarm annunciations.</p>	
20	Ratio control	1 nos.		
21	single loop controller	1 nos.	<p>Supply power : 24Vdc +10%-15%(ripple 1%or less), Consumption current : Power for main unit 24VDC-app.0.2APower for DI/O 24VDC 50mA or less, AI-</p>	

			6,A2,DI-3,DO-5	
22	Position sensor	2 nos.	operating voltage - 24vdc , output signal - 4-20ma	
23	limit switch	2 nos.	15A rating , With Common , NO & NC terminal	
Mechanical/Electrical & Safety tool kit				
1	Hard hat	1 nos.	standard	
2	Boots	1 nos.	standard	
3	Gloves	1 nos.	standard	
4	safety net	1 nos.	standard	
5	smoke mask	1 nos.	standard	
6	Goggles	1 nos.	standard	
7	Fire blanket	1 nos.	standard	
8	first aid kit	1 nos.	standard	
9	Screw driver set	1 nos.	standard	
10	Plier	2 nos.	standard	
11	Nose plier	2 nos.	standard	
12	wire cutter	2 nos.	standard	
13	wire stripper	2 nos.	standard	
14	Pipe wrench	2 nos.	standard	
15	side wrench	2 nos.	standard	
16	Small hacksaw	2 nos.	standard	
17	file set	2 nos.	standard	
18	Wodden hammer	2 nos.	standard	
19	Iron hammer	2 nos.	standard	
20	Megger	1 nos.	standard	
21	Insulation tape	20 nos	standard	
22	Fire Extinguisher (ABC Powder Type 2 Kg)	3 nos.	2 kg	
23	Teflon tape	20 nos	standard	
24	Tester	5 nos	standard	
25	crimping tool wire lugs	2 nos.	standard	
26	crimping tool Ethernet connector	2 nos.	standard	
27	Drill Machine	2 nos.	standard	
28	Digital Multimeter 3x1/2	2 nos.	Display : LCD Display(Backlit) Counts : 2000 AC Voltage Range : 0 to 600 V AC Voltage Accuracy : + - 1.2% + 10 DC Voltage Range : 200mV - 600 V	

STUDY OF VARIOUS TYPES OF ACTUATORS

1	Pneumatic Control Valve-	1	Size: ½", Type: Two way Globe type (Air to Close), Cv: 0.2 / 5 US GPM, with diaphragm actuator, Linear/ equal % characteristics Flange connection: PCD: 60 mm, ID: 16 mm, OD: 90 mm
2	Air Manifold	1	6 ports, ¼" Connection
3	Double Acting Cylinder	1	Mounting: Foot , 1 no. ¼" connection
4	Single Acting Cylinder	1	Mounting: Foot , 1 no. ¼" connection
5	3/2 way Hand Lever Valve	1	1/4" Connection, Hand Lever Operated Valve
6	5/2 way Hand Lever Valve	1	1/4" Connection, Hand Lever Operated Valve
7	Precision APR	1	¼" connection, O/P 3-15 psi, with Gauge
8	FRL Unit	1	¼" connection, O/P 0-10Kg/cm2 with Gauge
9	Pneumatic Control Valve	1	
10	Pneumatic Motor	1	Unidirectional, Air pressure: 0-90 psi
11	Motorized Control Valve (Linear Electric Actuator)	1	Motorized Actuator: Input: 4-20mA, Valve Size: ½", Type: Two way Globe type, Cv: 0.2 / 5 US GPM, with diaphragm actuator, Linear / equal % characteristics, Flange connection: PCD: 60 mm, ID: 16 mm, OD: 90 mm
12	Servo Controller	1	Input: 4-20mA, Output: 4-20mA, F.B.: 4-20mA, Supply: 1φ230 V AC
13	Current Source	1	Supply : 230 V AC, Output: 4-20mA
14	Air Compressor	1	Tank capacity: 25 Liters, Discharge: 2 CFM, Motor: 1H.P.230 V AC Operated, Working pressure: 5-6 kg/cm2

Other Items List

1	Display Unit	1	55" Display ✓ Screen Size: 55 Inches ✓ Connectivity: HDMI, USB ✓ Resolution: 1366x768 ✓ Number of Speakers: 2 ✓ Color: Black ✓ Display Features: HD Features
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2	Laptop	2	Base model with WINDOW PROFESSIONAL OS, MS OFFICE and application software RAM: 4 GB DDR3 Storage: 500 GB HDD Screen: 14" and above
CUT SECTION OF CONTROL VALVE TRAINER			
1	Size of valves: 1"/½".	1	Cut section of different type of valves such as, Ball Valve, Globe Valve, Gate Valve, Butterfly valve, Horizontal NRV, Vertical NRV, Needle Valve, Flow Control Valve, Solenoid Valve, Pneumatic Diaphragm type Equal % Valve.
SWITCHES AND RELAYS SETUP			
1	MCB	1	Single pole, 6 A
2	Mains Rocker switch	1	Red, Illuminated Switch
3	2 C/O Glass type Relay	1	24V DC, 2C/o Relay with base mounted on DIN Rail Channel
4	Contactora	1	Coil Supply: 230VAC
5	Timer	1	Coil Supply -230VAC, 1 C/O,
6	Pulse counter	1	24VDC, 2Wire Connection counter with Reset switch
7	PCB mount Relay	1	24VDC, 1C/O with base & PCB
8	1 C/O Solder type relay	1	24VDC operated, 1C/O
9	Solenoid Valve	1	24VDC operated
10	Micro limit switch	1	24VDC, With Common, NO & NC terminal
11	Thermostat	1	Capillary type, 30 to 110°C, 2 wire connection, Pot for Manual setting
12	Limit switch	1	15A rating, With Common, NO & NC terminal
13	Float switch	1	Magnetic type, 2Wire
14	Proximity switch	1	PNP, 24 VDC operated, Sensing distance -0-6mm, NO type
15	Optical switch	1	PNP, 24 VDC, 3 wire, Sensing dist. 0-10mm, NO type
16	Selector Switch	1	Black Color, 2 positions, With Element
17	Push button with indicator & Element	1	TEK 2ALRF, 230VAC Red Element – TEK S-1 NO
18	Push button w/o indicator & Element	1	TEK 2AF, 24VDC Element – TEK S-1 NO

19	Push button w/o indicator with Element & latching attachment	1	Element – TEK S-1 NO, Latching attachment – TEK 2PPM	
20	Panel key switch	1	2 position, with key	
21	Panel door switch	1	24 VDC, NO, white color	
22	1 c/o Push button	1	Red Push button , 4A, with Common , NO& NC terminal	
23	Momentary switch	1	Size-16mm, Yellow, 24VDC,	
24	Toggle switch	1	6A/250V, SPDT	
25	Power supply	1	I/P supply 230VAC O/P supply 24VDC, 3A	
26	Indicating lamps	25	16.5 mm cut out, 24VDC Amber	
27	3 pin Top	1	6A , Anchor Make	
28	Reed Switch	1	I/P 24VDC, 2 Wire	
29	Capacitive Switch	1	I/P 24VDC , PNP , 3Wire	

Package II : Setting up of Building Automation Lab Prices

S.No	Equipment name	Qty in Number	Specification	Price
1	Secure Building - Access control, CCTV and Public address system Kit	1 nos.	Dome camera, Bullet camera, IP Camera, Access control system, PA System, NVR, Display Unit and accessories complete kit	
2	Safe Building - Addressable Fire security Kit	1 nos.	complete Kit	
3	Lighting / A.C. control with Motion sensor	4 nos	Type - PIR Motion detector Output Load 300W (Resistive) Detection Range 8m (360°) Light Control <10 to 2000 lux Power Supply 230V AC Dimensions (Sensor) 28mmØ Dimensions (Module) 50 x 40mmØ	
4	HVAC System	1 Set		
5	PLC/VFD Drives/HMI Application Software/Servers to plupe I/P, Digital I/P, Analog I/P Ethernet Switch/Display unit	1 Set		
6	Slip Ring Motor, Squirrel Cage Motor, DOL Started, Star & Delta Starter, GenPet	1 Set		
7	Switches & Relay setup	1 Set		
IT Equipment list				
1	Desktop/Laptop	1 nos.	with 4 GB RAM, 500 GB Hard Disk, Windows Professional Operating System, MS Office	
2	AutoCad	1 nos.	Software	
3	Inkjet / Laser Printer	1 nos.	Monochrome Inkjet / Laser, A4 size preferable	
4	2 KVA UPS	1 nos.	Input Voltage: 220 V Output Voltage: 220 V Input Frequency: 50-60 Output Frequency: 50-60	
5	HDMI/SVG Cable	2 nos.		
6	SMPS	1 nos.	Input voltage -240vAC and output voltage - 12vdc, current - 5 Amp.	
7	IBMS Software	1 nos.	Software	

Mechanical/Electrical & Safety items

1	Hard hat	1 nos.	standard	
2	Boots	1 nos.	standard	
3	Gloves	1 nos.	standard	
4	safety Net	1 nos.	standard	
5	smoke mask	1 nos.	standard	
6	Goggles	1 nos.	standard	
7	Fire blanket	1 nos.	standard	
8	first aid kit	1 nos.	standard	
9	Screw driver set	1 nos.	standard	
10	Plier	2 nos.	standard	
11	Nose plier	2 nos.	standard	
12	wire cutter	2 nos.	standard	
13	wire stripper	2 nos.	standard	
14	Pipe wrench	2 nos.	standard	
15	side wrench	2 nos.	standard	
16	Small hacksaw	2 nos.	standard	
17	file set	2 nos.	standard	
18	Wodden hammer	2 nos.	standard	
19	Iron hammer	2 nos.	standard	
20	Megger	1 nos.	standard	
21	Insulation tape	20 nos	standard	

22	Fire Extinguisher (ABC Powder Type 2 Kg)	3 nos.	2 kg	
23	Teflon tape	20 nos	standard	
24	Tester	5 nos	standard	
25	crimping tool wire lugs	2 nos.	standard	
26	crimping tool Ethernet connector	2 nos.	standard	
27	Digital Multimeter 3x1/2	2 nos.	<p>Display : LCD Display(Backlit) Counts : 2000 AC Voltage Range : 0 to 600 V AC Voltage Accuracy : + - 1.2% + 10 DC Voltage Range : 200mV - 600 V</p>	
28	3-1/2 digit DMM	1 nos.	<p>Display : LCD Display(Backlit) Counts : 2000 AC Voltage Range : 0 to 600 V AC Voltage Accuracy : ?1.2% + 10 DC Voltage Range : 200mV - 600 V</p>	
29	3-1/2 digit Clipon / Tong tester	1 nos.	<p>Jaw Size: 50 millimeter or 2.0 inch Tests AC or DC voltage, AC current and resistance Diode check and continuity test Data hold Salient features: AC 1000 Amp. Clamp Meter AC 750 Volt & DC 1000 Volt Resistance & Continuity Buzzer 2000 Count Display & Jaw Size 50 mm Data Hold & Manual Range Selection 1 X 9V. Battery</p>	

30	Megger 1000V	1 nos.	P54 rated 2 and 3 point testing Selectable 25 V or 50 V output Complete with lead and stake kit Simple one button operation
31	Lugs	2 Packet	Pin type 1. High quality copper and PVC insulator 2. Lead-free tin plating for better conductivity 3. Size - 0.5 sq mm, 1 sp mm
32	Crimping tools	1	RJ-45 connector
33	Relays	1	Operating voltage- 24vDc
34	Power cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (4 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
35	Signal cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (2 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
36	Coaxial cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (4 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
37	Flat cable	25 Mtrs	1. PVC Insulated Cable : 1/1.5 Sq mm (2 core) 2. Material : PVC Type-A 3. Color : Black/Red/ yellow
38	LAN cable	50 Mtrs	Cat-6 cable
39	Ferrules	5 Mtrs	Nylon , 0.5,1 sq mm
41	Cable ties	5 packet	Nylone , cable tie length - 12mm,thickness- 0.5mm ,temperature rating -40 to 85 C

42	Cable Glands	20	.Temperature Static : - 40 to +100 ,Dynamic : - 20 to +8 C 2. Protection Class : IP 68-5 bar 3. material : Body - Polyamide, Sealing : Neoprene
43	Cable trays	10 Mtrs	Material : MS, Size 2"/4"/8"/12"
44	Sleeves	1 Mtrs	For Wires, cables and accessories
45	LAN connectors	50	Connector Type: RJ-45 , 8 pin type
46	Drill Machine	2	Standard

OTHER ITEMS

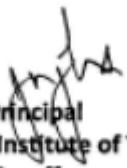
1. Solar System 10KVA with 6hours battery backup on full load.
2. Renovation & Furnishing of Lab as per requirement to established the Lab.
3. AMC charges after 2years warranty

AMC	Price
3 rd Year	
4 th Year	
5 th Year	

4. After setting up of corresponding lab, in order to increase the understanding of lab equipment a workshop of up to 3 days should be provided by the corresponding supplier.

7. PAYMENT TERMS

- On Delivery, Installation, Demonstration and Manual Submission: - 90%
- Satisfactory Acceptance: - 10%
- 5% Performance security in terms of Bank Guarantee


 Principal
 Muzaffarpur Institute of Technology
 Muzaffarpur

ANNEXURE-1: BIDDER'S AUTHORIZATION CERTIFICATE {to be filled by the bidder}

To,
{Procuring entity},

_____,

I/ We {Name/ Designation} hereby declare/ certify that {Name/ Designation} is hereby authorized to sign relevant documents on behalf of the company/ firm in dealing with NIB reference No. _____ dated _____. He/ She is also authorized to attend meetings & submit technical & commercial information/ clarifications as may be required by you in the course of processing the Bid. For the purpose of validation, his/ her verified signatures are as under.

Thanking you,

Name of the Bidder: -

Verified Signature:

Authorised Signatory: -

Seal of the Organization: -

Date: _____

Place: _____

ANNEXURE-2: SELF-DECLARATION {to be filled by the bidder}

To,

{Procuring entity},

In response to the NIB Ref. No. _____ dated _____ for
{Project Title}, as an Owner/ Partner/ Director/ Auth. Sign. of
_____, I/ We hereby declare that presently our Company/
firm _____, at the time of bidding, :-

- a) possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;
- b) have fulfilled my/ our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the Bidding Document;
- c) is having unblemished record and is not declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State/ Central government/ PSU/ UT.
- d) does not have any previous transgressions with any entity in India or any other country during the last three years
- e) does not have any debarment by any other procuring entity
- f) is not insolvent in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and is not the subject of legal proceedings for any of the foregoing reasons;
- g) does not have, and our directors and officers not have been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;
- h) does not have a conflict of interest as mentioned in the bidding document which materially affects the fair competition.
- i) will comply with the code of integrity as specified in the bidding document.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken as per the provisions of the applicable Act and Rules thereto prescribed by GoR, my/ our security may be forfeited in full and our bid, to the extent accepted, may be cancelled.

Thanking you,

Name of the Bidder: -

Authorised Signatory: -

Seal of the Organization: -

Date: _____

Place: _____

ANNEXURE-3: CERTIFICATE OF CONFORMITY/ NO DEVIATION {to be filled by the bidder}

To,
{Procuring Entity},

_____.

CERTIFICATE

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

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

I/ We also certify that the price I/ we have quoted is inclusive of all the cost factors involved in the end-to-end implementation and execution of the project, to meet the desired Standards set out in the bidding Document.

Thanking you,

Name of the Bidder: -

Authorised Signatory: -

Seal of the Organization: -

Date: _____

Place: _____
