



COEP Technological University (COEP Tech)

A Unitary Public University of Government of Maharashtra
(Formerly College of Engineering Pune)

Department of Instrumentation and Control Engineering
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Enquiry Letter

Sealed Quotations are invited by the Department of Instrumentation and Control Engineering from reputed manufacture/vendor/service provider for the providing laboratory equipments

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| Enquiry Number :- | COEPTU/Instru/Enq/PI Lab/Measurement kits/2024-25/223 |
| Enquiry Date:- | 19/08/2024 |
| Material Description & Qty:- | Supply and Installation of Measurement and Signal conditioning kit Qty-31 (Trainer Kit-10) Detailed Technical Specification in Annexure |
| Location:- | Department of Instrumentation and Control Engineering |
| Quotation Submission Date@ Time:- | Up to 06/09/2024 @ 5.00pm |
| Quotation Submission Place:- | Inward Section, Establishment Office, COEP Technological University Pune-411005 |
| Quotation Opening Place:- | Office of Department of Instrumentation and Control Engineering COEP Technological University Pune-411005 |

Terms and Conditions:-

1. Fax and Email quotation are not acceptable.
2. The taxes, insurance, freight, packing and forwarding charges if any be quoted in Indian Rupees separately.
3. The rates shall be valid for 90 days.
4. Validity: Quotation Validity at least 90 days from the due date.
5. Quotations shall be sent in sealed envelopes clearly marked Quotation for Supply and Installation of, _____, Enquiry Number, Enquiry date and Enquiry due date addressed to The Head, Department of Instrumentation and Control Engineering, COEP Technological University Pune-411 005.
6. 100% payment will be paid after satisfactory delivery, installation and commissioning/work.
7. Please specify the make and model of the item.
8. Quotation(s) received after last date of Quotation submission will be rejected.
9. Delivery/Work Period and Terms Conditions should be mentioned clearly.
10. Delivery/Work: The penalty conditions are applicable for the late delivery as per Government norms.
 - a) at the rate of 0.5 % per week; maximum limit of 10% shall be charged in case of PO value is less than 2 Lakh.
 - OR
 - b) at the rate of 0.5 per week; maximum limit of 5% shall be charged in case of PO value is 2 Lakh and above.

11. All following documents/certificates should be provided / attached at the time quotation submission.
- a) Shop Act License/Incorporation Certificate/Firm Registration Certificate Copy.
 - b) PAN Card Copy
 - c) GST Certificate Copy
12. Optional items should be quoted in separate sheet otherwise your quote will be rejected
13. Supply/Work and Installation:- Vendor shall be responsible for successful installation, commissioning and testing of the supplied items at Department of Instrumentation and Control Engineering, COEP Technological University Pune-411 005. Any defective component/device will be replaced by vendor at his cost.
14. The Registrar of COEP Technological University Pune reserves right to reject any one or all the quotation(s) without assigning any reasons there for.



Registrar
COEP Technological University, Pune

Registrar
COEP Technological University (COEP Tech)
Pune-411005

Annexure A**Commercial****(Quotation submitted by bidder on letterhead)**

| Sr. No | Material Description | Make & Model | Qty in Unit | Rate per Unit in Rs. | Total Amount in Rs |
|--|------------------------------------|-------------------------|--------------------|-----------------------------|---------------------------|
| 1 | Wheatstone bridge | | 04 | | |
| 2 | Kelvin's bridge trainer | | 04 | | |
| 3 | Hay's bridge trainer | | 04 | | |
| 4 | Tow port network trainer | | 04 | | |
| 5 | LVDT Trainer Kit | | 04 | | |
| 6 | Strain gauge Trainer Kit | | 04 | | |
| 7 | Proximity sensor Trainer Kit | | 04 | | |
| 8 | Temperature transducer Trainer Kit | | 01 | | |
| 9 | Level transducer Trainer Kit | | 01 | | |
| 10 | Pressure transducer Trainer Kit | | 01 | | |
| Cost (Exclusive of all Taxes) in Rs. | | | | | |
| GST % in Rs. | | | | | |
| Total Amount (Inclusive of all Taxes) in Rs. | | | | | |
| Total Amount (Inclusive of all Taxes) in words Rupees Only | | | | | |

PAN No:-.....

GST Registration No:-.....

Service Tax Registration No:-.....

Signature:-.....

Name:-.....

Address:-.....

Company Rubber Stamp:-.....

| Sr. No. | Name of Instruments | Technical Specifications | Quantity |
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| 1. | Wheatstone Bridge | Features <ul style="list-style-type: none"> • Sample : Constantan, Nichrome • Provided with DC Power Supply • Compact design • Easy to operate Technical Specifications DC Power Supply : 5V Galvanometer Deflection : 30 - 0 - 30 Resistance : 80 Ω Unknown Resistance Type : Variable Range : 0 - 10k Ω Wire Samples Constantan : 1m Nichrome : 1m Fuse : 500mA Mains Supply : 90 - 275V, 50Hz Scope of Learning <ul style="list-style-type: none"> • Determination of unknown resistance • Determination of resistivity of the material of wire • Verification of effects of resistance in series and parallel | 04 |
| 2. | Kelvin's Bridge | Features <ul style="list-style-type: none"> • Easy illustration of Kelvin's bridge • Digital display (DPM) for null detection • Online product tutorial Technical Specifications DC Power Supply : +5V Known Resistance : R1=100K Ω , 20K Ω , 10K Ω R3=1K Ω , 200 Ω , 100 Ω Unknown Resistance : 0.3 Ω , 0.4 Ω , 0.8 Ω DPM : 2V Mains Supply : 230 V \pm 10%, 50 Hz Compact in size and dimension Experiment <ul style="list-style-type: none"> • Determination of unknown resistance using Kelvin's bridge method | 04 |
| 3. | Hay's Bridge | Features <ul style="list-style-type: none"> • In-built sine wave generator • Adjustable frequency and Amplitude of Sine Wave • Digital display for Null detection • 10 turn potentiometer for balancing the bridge Technical Specifications Mains supply : 230V \pm 10%, 50Hz Sine wave generator Frequency : 1kHz to 10kHz \pm 10% Amplitude : 0 to 5Vpp DPM : 0-200mV Unknown Inductors : 58mH \pm 10% with 580 \pm 10% of resistance 100mH \pm 5% with 1740 \pm 5% of resistance 116mH \pm 10% with 1160 \pm 10% of resistance Compact in size and dimension Scope of Learning <ul style="list-style-type: none"> • Determination of unknown inductance and Q-factor using Hay's bridge method. | 04 |
| 4 | Two Port Network Platform | Features Easy experimental illustration of Two Port Network analysis <ul style="list-style-type: none"> • Inbuilt +12 V and +5 V DC Power Supplies Technical Specifications Mains Supply : 230 V \pm 10%, 50 Hz DC Power Supplies : +12 V, | 04 |

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| | | <p>+5 V Compact in size and dimension</p> <p>Experiments</p> <ul style="list-style-type: none"> • Study of Z-Parameters of a Passive Two Port Network • Study of Y-Parameters of a Passive Two Port Network • Study of ABCD-Parameters of a Passive Two Port Network | |
| 5 | LVDT Trainer Kit | <p>Features</p> <p>Self-contained and easy to operate</p> <ul style="list-style-type: none"> • Sensitive, Linear, Stable & Accurate • Functional blocks indicated on board mimic • 3½ digit LED display with polarity indicator • Onboard LVDT displacement measurement jig with micrometer • Onboard Excitation Generator • Amplitude adjustment for Excitation Generator • High repeatability and reliability <p>Technical Specifications</p> <p>Measurement Range : 20 mm (± 10 mm) Excitation Frequency : 4 KHz (approximately) Excitation Voltage : 4 V (approximately) PP Sensitivity : 10 mV DC/ mm Linear Range : Full Scale Signal conditioner output : 0.1 V DC or Maximum Displacement Display : 3½ Digit LED with Polarity Indicator Micrometer Scale : 25 mm Micrometer Least count : 0.01 mm Test points : 8 nos. Power Consumption: 2 VA (approximately) Power Supply : 110V - 260V AC, 50/60Hz Weight : 1.5Kg (approximately) Operating Conditions : 0-40 C, 85% RH Patch cord 16" (2mm) -2nos</p> <p>Scope of Learning</p> <ul style="list-style-type: none"> • Study of Input Output characteristics of LVDT • Determination of linear range of operation of LVDT • Determination of sensitivity of LVDT • Measurement of phase difference between LVDT secondary windings | 04 |
| 6 | Strain Gauge Experimental Trainer Kit | <p>Features</p> <ul style="list-style-type: none"> • Self-contained and easy to operate • Sensitive, Linear, Stable & Accurate • Test-points to observe input output of each block • Onboard gain adjustment • Onboard offset null adjustment • Built in DC Power Supplies • 3½ digits LED display • Onboard Cantilever arrangement • High repeatability and reliability <p>Technical Specifications</p> <p>Strain Gauge (350Ω): 4 nos. Gauge factor : 2.1 Maximum bearable weight : 500 gm Cantilever material : Stainless Steel Cantilever width : 2.5 cm Cantilever thickness : 0.16 cm Cantilever length : 20 cm Bridge Voltage : +8 V DC Bridge configuration : Full Bridge Display : 3½ Digit LED Test points : 8 nos. on Accessories Included : Mains cord-1no. Standard</p> | 04 |

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| | | <p>Weights-1set. USB cable (optional)-1no Power Supply: 230 V $\pm 10\%$, 50 Hz . 60 Hz on request Power Consumption : 3 VA (approx.) Operating Conditions : 0-40 C, 85% RH</p> <p>Experiments</p> <ul style="list-style-type: none"> •Study of strain measurement using strain gauges and cantilever assembly. •Determination of linear range of operation of strain measurement. •Determination sensitivity. | |
| 07 | Proximity Sensors | <p>Technical Specifications</p> <p>Optical Sensor : Transmitter : IR LED Wavelength : 940nm IR Receiver : Phototransistor Wavelength : 940nm Operating input voltage : 5V DC Output signal : TTL Sensing range : 0-10 mm Magnetic Sensor : Operating input voltage : 5V DC Output voltage : 5V DC Sensing range : 0-20mm Inductive Proximity Sensor : Operating input voltage : 12V DC Sensor type : PNP Output voltage : 12V DC Sensing range : 0-10 mm Switch type : 1NO Capacitive Proximity Sensor : Operating input voltage : 12V DC Sensor type : PNP Output voltage : 12V DC Sensing range : 0-10 mm Switch type : NO, Body : Cubical Output Circuit : LED and Buzzer Test Points : 8 nos Power Supply : 110V - 260V $\pm 10\%$, 50/60Hz</p> <p>Experiments</p> <p>Study and use of : Inductive Proximity Sensor. Capacitive Proximity Sensor. Magnetic Sensor. Optical Sensor.</p> | 04 |
| 08 | Temperature Transducer Trainer Kit | <p>Features:</p> <ul style="list-style-type: none"> •Different type of temperature sensors like: Bimetallic strip, RTD, thermocouple, and thermistor. • Separate heater and fan chamber with stand. • On panel digital voltmeter, digital ammeter, RTD/thermocouple temperature display, NTC temperature display, toggle switch for heater and fan with indicator. • Experiments configurable through patch board. • Heavy duty Test bench. • Castor wheel (with locking mechanism) is provided at legs of Test bench so that it can be easily moved. • Enhanced electrical safety consideration. <p>Technical Specifications</p> <p>RTD/Thermocouple temperature display : 1 no. Display : 4 digit, 7 segment digital display Keys : 3 for digital setting Input type : RTD (PT100) & thermocouple Resolution : 1 or 0.1 degree S Thermistor temperature display : 1 no. Display : 4 digit, 7 segment digital display Keys : 3 for digital setting Input type : Thermistor Resolution : 1 or 0.1 degree S RTD sensors : 1 no. Type : RTD (PT100) Wire : 3 wire Temperature range : (-99 to 850°C) Thermocouple sensors : 1 no. Type : K type Wire : 2 wire Temperature range : -200 to 1250°C Thermistor : 1 no. Temperature measuring range : -50 to</p> | 01 |

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| | | <p>99°C. Bimetallic thermometer : 1 no. Range : 0 to 150°C Digital voltmeter : 1 no. Digital ammeter : 1 no. Heater : 1 no. Power : 1000W Supply : 230 V AC Toggle switches : 2 nos. Indicator : 2 nos. Caster wheel : 4 nos. (with lock), 2 (without lock) Size : 4"</p> <p>Accessories :</p> <ul style="list-style-type: none"> • 4mm patch cord : 8 nos. • Mains cord : 1 no. • Heater and fan chamber with stand : 1 no. <p>Experiments</p> <ul style="list-style-type: none"> • Temperature measurement using K type thermocouple and temperature display. • Temperature measurement using thermistor (NTC) and temperature display. • Temperature measurement using Bimetallic thermometer. • Temperature measurement using RTD and temperature display | |
| 09 | Pressure Transducers Trainer Kit | <p>Features</p> <ul style="list-style-type: none"> • Pressure vessel with pressure gauge, safety valve, non returning valve bourdon gauge and capacitive transducer and air compressor. • On panel digital voltmeter, digital ammeter, 4-20ma display, 0-10V DC display, toggle switch for compressor. • Load cell with suitable weight. • Experiments configurable through patch board. • Self-contained, bench-mounting arrangement. • Castor wheel (with locking mechanism) is provided at legs of Test bench so that it can be easily moved. • Enhanced electrical safety consideration. <p>Technical Specifications</p> <p>Capacitive pressure transducer: 1 no. Range: 0-90 Psi Output: 4-20mA Type: Capacitive Load cell: 1 no. Maximum bearable weight: 5kg. Load cell type: Strain guage/shear beam Output: 10 gram/10mV Current display : 1 no. Display : 4 digit, 7 segment digital display Keys : 3 for digital setting Input type : Current (4-20mA) Supply voltage : 230V AC Voltage display : 1 no. Display : 4 digit, 7 segment digital display Keys : 3 for digital setting Input type : Voltage (0-10VDC) AC digital voltmeter : 1 no. Range : 0-300VAC AC digital ammeter : 1 no. Range : 0-10A AC Toggle switches : 1 no. Indicator : 1 no. Pressure vessel : 1 no. Pressure gauge : 0 to 100 psi Pressure vessel : 0 to 100 psi Safety valve : 0 to 100 psi Non returning valve : 1 no. Bourdon tube pressure gauge : 1 no. Range : 0-100 psi Air compressor : 1 no. Power : 0.75 HP Pressure : 100 psi (maximum) Caster wheel (4") : 4 nos (with lock), 2 (without lock) Accessories : Air compressor - 1 no. 4mm patch cord - 6 nos. Mains cord - 1 no Standard weights 20 gram - 1 no., 50 gram - 2 nos., 100 gram - 2 nos.</p> | 01 |

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| | | & 200 gram - 2 nos. Experiments <ul style="list-style-type: none"> • Capacitive pressure transducer characteristics. • Study and use of load cell. • Pressure measurement using bourdon tube pressure gauge. | |
| 10 | Level Transducers Trainer Kit | Product Features <ul style="list-style-type: none"> • Different type of level sensors like: capacitive type and float type. • SS sump tank and measuring tank. • On panel digital voltmeter, digital ammeter, 4-20ma display, 0-10V DC display, toggle switch for pump and solenoid valve with indicator. • Experiments configurable through patch board. • Self-contained, bench-mounting arrangement. • Castor wheel (with locking mechanism) is provided at legs of Test bench so that it can be easily moved. • Enhanced electrical safety consideration. Technical Specifications: Capacitive transducer : 1 no. Housing enclosure : Cast aluminum weather proof Supply : +24V DC Response time : 0.5s to 5 sec Output : 4 to 20mA Range : 230mm User interface : 4 digit display with 4 keys and LED Float switch : 1 no. Contact rating : 10 W. Switching voltage : 220 V. Contact resistance : 100 mΩ . Current display : 1 no. Display : 4 digit, 7 segment digital display Keys : 3 for digital setting Input type : Current (4-20mA) Resolution : 1 or 0.1 degree Supply voltage : 230V AC Voltage display : 1 no. Display : 4 digit, 7 segment digital display Keys : 3 for digital setting Input type : Voltage (0-10VDC) Resolution : 1 or 0.1 degree Supply voltage : 230V AC AC digital voltmeter : 1 no. Range : 0-230VAC AC digital ammeter : 1 no. Range : 0-10A AC Toggle switches : 2 nos. Indicator : 2 nos. Caster wheel : 4 nos. (with lock), 2 (without lock) Size : 4" Sump tank : 1 no. Material : SS Measuring tank : 1 no. Material : SS Pump : 1 no. Solenoid valve : 1 no. Line size : ½" Mains Supply : 230VAC Accessories : 4 mm patch cord - 6 nos. Mains cord - 1 no. | 01 |