



NATIONAL INSTITUTE OF TECHNOLOGY

ROURKELA-769008 (ODISHA)

An Institute of National Importance under Ministry of HRD, GOI

NOTICE INVITING TENDER

Tender Notification No: NITR/PW/CY/2018/79

Dated: 13/11/2018

The National Institute of Technology, Rourkela invites bids from the eligible bidders for procurement of **Scientific instrument** at NIT Rourkela

Last date of Submission of Bid : **04/12/2018 at 03:00 PM**

Date of opening of Technical Bid : **05/12/2018 at 03:00 PM**

For Details:

http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx

Contact: Prof. Raj Kishore Patel[CY]; Ph.No:- 0661- 2462652

Email: rkpatel@nitrkl.ac.in

Bidding through: <https://eprocure.gov.in/eprocure/app>

**sd/-
REGISTRAR**



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008, ODISHA**

(Limited Tender Notice No.: NITR/PW/CY/2018/79

dated: 13/11/2018)

Procurement of Scientific **instrument** at NIT Rourkela

| Sl.No | Description of Goods | Quantity |
|--------------|--|-----------------|
| 1 | BENCHTOP PH CUM CONDUCTIVITY METER | 1 Nos |
| 2 | UV-VIS SPECTROPHOTOMETER | 1 Nos |
| 3 | MAGNETIC STIRRER WITH PORCELAIN ENAMEL HOT PLATE | 1 Nos |
| 4 | BENCHTOP PH/ION METER | 1 Nos |
| 5 | FLUORIDE ELECTRODE | 1 Nos |
| 6 | AUTOCLAVES / REACTORS / PRESSURE VESSELS | 1 Nos |

1. Quantity required : **as mentioned above (All information regarding technical specification provided in the Annexure-I)**
2. Delivery : Within **30 days** from the date of purchase order
3. **Last Date of submission of Tender : 04/12/2018 at 03:00 PM**
4. **Date of opening of technical bid : 05/12/2018 at 03:00 PM**
5. The firm should not have been black listed at any time.
6. The submission of following bids by the tenderer should be through <https://eprocure.gov.in/eprocure/app>. Please follow the guidelines as per the portal.

Procurement of Scientific **instrument** at NIT Rourkela
(Tender Notice No.: NITR/PW/CY/2018/79 dated: - 13/11/2018) Due on 04/12/2018 at 03:00 PM

7. **Liquidated damage clause** will be charged for any delay in supply of goods.
8. The validity of the tender shall be **90 days** from the date of opening of the bids.
9. Detailed advertisement including all tender documents is also available in our website at http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx
10. NIT reserves the right to qualify or deny prequalification of any or all applicants without assigning any reasons.

(REGISTRAR)
NIT, Rourkela
Fax No- 0661-2462022
Ph. No -0661-2462021

SPECIFICATION OF SCIENTIFIC INSTRUMENTS

| Sl. No. | Description of items to be supplied | Quantity | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----------------------|--|-----------------------|---------------------------------------|---------------------------|--------|--|----------------------------|-----------------|--------------------------|--|---|---|--|--------------------|--|----------------|---|---------------|--|---------------------|--|-------------------|--|---------------|-----------------|---------------------------|----------------------------|---|
| 1 | <p><u>BENCHTOP PH CUM CONDUCTIVITY METER:</u> PH RANGE : -2.000 TO 20.000, RESOLUTION : 0.1, 0.01, 0.001, ACCURACY : ± 0.002 CONDUCTIVITY RANGE : 0.001μS TO 3000MS , RESOLUTION : 0.001, ACCURACY : 0.5% READING ± 1 DIGIT CALIBRATION POINTS : UP TO 5 POINTS CALIBRATION EDITING : YES TEMPERATURE RANGE : -5 TO 105 °C, DATA LOGGING MEMORY: 2000 DATA POWER: INCLUDED – UNIVERSAL POWER ADAPTER, 100-240 VAC / OPTIONAL – 4 NOS. AA BATTERIES. WATERPROOFING RATE : IP54 RATED ORP MODE : YES <u>ELECTRODES SPECIFICATION:</u> PH/ATC PROBE : RANGE: 0 TO 14; TEMPERATURE RANGE: 0 TO 100°C CONDUCTIVITY PROBE RANGE: 1 μS/CM TO 200 MS/CM; CELL CONSTANT (K) : 0.475</p> <p><u>ITEM SHOULD INCLUDE :</u> BENCHTOP pH/CONDUCTIVITY METER WITH PH/ATC PROBE, CONDUCTIVITY CELL (K=0.475), PH 4, 7 & 10 BUFFERS, PH ELECTRODE STORAGE SOLUTION, CLEANING SOLUTION, PH RINSE SOLUTION, 1413μS/CM CONDUCTIVITY STANDARD, PROBE HOLDERS & STAND AND UNIVERSAL POWER ADAPTER</p> | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p><u>UV-VIS SPECTROPHOTOMETER:</u></p> <table border="1" data-bbox="196 852 1411 1885"> <tbody> <tr> <td data-bbox="196 852 636 926">SYSTEM BASICS</td> <td data-bbox="636 852 1411 926">INSTRUMENT SHOULD HAVE AN OPEN SYSTEM, WHICH CAN ACCEPT REAGENTS OF MULTIPLE BRANDS.</td> </tr> <tr> <td data-bbox="196 926 636 978">OPTICAL DESIGN</td> <td data-bbox="636 926 1411 978">DUAL BEAM—INTERNAL REFERENCE DETECTOR</td> </tr> <tr> <td data-bbox="196 978 636 1031">SPECTRAL BANDWIDTH</td> <td data-bbox="636 978 1411 1031">1.8 NM</td> </tr> <tr> <td data-bbox="196 1031 636 1104">LIGHT SOURCE (TYPICAL LIFETIME)</td> <td data-bbox="636 1031 1411 1104">XENON FLASH LAMP (5 YEARS)</td> </tr> <tr> <td data-bbox="196 1104 636 1157">DETECTOR</td> <td data-bbox="636 1104 1411 1157">DUAL SILICON PHOTODIODES</td> </tr> <tr> <td data-bbox="196 1157 636 1272">WAVELENGTH RANGE ACCURACY REPEATABILITY SLEW SPEED SCANNING SPEED DATA INTERVAL</td> <td data-bbox="636 1157 1411 1272">190 TO 1100 NM ± 1.0 NM ± 0.5 NM 11,000 NM/MIN 10 TO 4,200 NM/MIN 0.2, 0.5, 1.0, 2.0, 3.0, 5.0 NM</td> </tr> <tr> <td data-bbox="196 1272 636 1398">PHOTOMETRIC MEASUREMENT MODES RANGE LINEARITY ACCURACY NOISE DRIFT</td> <td data-bbox="636 1272 1411 1398">ABSORBANCE, % TRANSMITTANCE, CONCENTRATION -0.5 TO 5.0 A ; -1.5 TO 125 %T ; ± 9999 C UP TO 3.5 A AT 260 NM ± 0.005 A AT 1.0 A, <0.00025 AT 0.0 A <0.00050 AT 1.0 A, <0.00080 AT 2.0 A RMS AT 260 NM <0.0005 A/HR</td> </tr> <tr> <td data-bbox="196 1398 636 1493">STRAY LIGHT</td> <td data-bbox="636 1398 1411 1493"><0.08 %T AT 220 NM AND 340 NM, <0.1 %T AT 340 NM AND 400 NM, <1.0 %T AT 198 NM</td> </tr> <tr> <td data-bbox="196 1493 636 1545">DISPLAY</td> <td data-bbox="636 1493 1411 1545">GRAPHICAL WITH LCD BACKLIGHT— 9.7 X 7.1 CM (3.8 X 2.8 IN)</td> </tr> <tr> <td data-bbox="196 1545 636 1598">KEYPAD</td> <td data-bbox="636 1545 1411 1598">SEALED MEMBRANE WITH TACTILE RESPONSE KEYS</td> </tr> <tr> <td data-bbox="196 1598 636 1713">CONNECTIVITY</td> <td data-bbox="636 1598 1411 1713">USB TYPE A PORT FOR USB STICK (FRONT PANEL), USB TYPE B PORT FOR COMPUTER (REAR PANEL), USB TYPE A PORT FOR PRINTER (REAR PANEL)</td> </tr> <tr> <td data-bbox="196 1713 636 1766">DIMENSIONS</td> <td data-bbox="636 1713 1411 1766">30 W X 40 D X 25 H CM (11.8 X 15.7 X 9.8 IN)</td> </tr> <tr> <td data-bbox="196 1766 636 1818">WEIGHT</td> <td data-bbox="636 1766 1411 1818">8.6 KG (19 LB.)</td> </tr> <tr> <td data-bbox="196 1818 636 1885">POWER REQUIREMENTS</td> <td data-bbox="636 1818 1411 1885">100 TO 240 V ; 50 TO 60 HZ</td> </tr> </tbody> </table> | SYSTEM BASICS | INSTRUMENT SHOULD HAVE AN OPEN SYSTEM, WHICH CAN ACCEPT REAGENTS OF MULTIPLE BRANDS. | OPTICAL DESIGN | DUAL BEAM—INTERNAL REFERENCE DETECTOR | SPECTRAL BANDWIDTH | 1.8 NM | LIGHT SOURCE (TYPICAL LIFETIME) | XENON FLASH LAMP (5 YEARS) | DETECTOR | DUAL SILICON PHOTODIODES | WAVELENGTH RANGE ACCURACY REPEATABILITY SLEW SPEED SCANNING SPEED DATA INTERVAL | 190 TO 1100 NM ± 1.0 NM ± 0.5 NM 11,000 NM/MIN 10 TO 4,200 NM/MIN 0.2, 0.5, 1.0, 2.0, 3.0, 5.0 NM | PHOTOMETRIC MEASUREMENT MODES RANGE LINEARITY ACCURACY NOISE DRIFT | ABSORBANCE, % TRANSMITTANCE, CONCENTRATION -0.5 TO 5.0 A ; -1.5 TO 125 %T ; ± 9999 C UP TO 3.5 A AT 260 NM ± 0.005 A AT 1.0 A, <0.00025 AT 0.0 A <0.00050 AT 1.0 A, <0.00080 AT 2.0 A RMS AT 260 NM <0.0005 A/HR | STRAY LIGHT | <0.08 %T AT 220 NM AND 340 NM, <0.1 %T AT 340 NM AND 400 NM, <1.0 %T AT 198 NM | DISPLAY | GRAPHICAL WITH LCD BACKLIGHT— 9.7 X 7.1 CM (3.8 X 2.8 IN) | KEYPAD | SEALED MEMBRANE WITH TACTILE RESPONSE KEYS | CONNECTIVITY | USB TYPE A PORT FOR USB STICK (FRONT PANEL), USB TYPE B PORT FOR COMPUTER (REAR PANEL), USB TYPE A PORT FOR PRINTER (REAR PANEL) | DIMENSIONS | 30 W X 40 D X 25 H CM (11.8 X 15.7 X 9.8 IN) | WEIGHT | 8.6 KG (19 LB.) | POWER REQUIREMENTS | 100 TO 240 V ; 50 TO 60 HZ | 1 |
| SYSTEM BASICS | INSTRUMENT SHOULD HAVE AN OPEN SYSTEM, WHICH CAN ACCEPT REAGENTS OF MULTIPLE BRANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OPTICAL DESIGN | DUAL BEAM—INTERNAL REFERENCE DETECTOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SPECTRAL BANDWIDTH | 1.8 NM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LIGHT SOURCE (TYPICAL LIFETIME) | XENON FLASH LAMP (5 YEARS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DETECTOR | DUAL SILICON PHOTODIODES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WAVELENGTH RANGE ACCURACY REPEATABILITY SLEW SPEED SCANNING SPEED DATA INTERVAL | 190 TO 1100 NM ± 1.0 NM ± 0.5 NM 11,000 NM/MIN 10 TO 4,200 NM/MIN 0.2, 0.5, 1.0, 2.0, 3.0, 5.0 NM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PHOTOMETRIC MEASUREMENT MODES RANGE LINEARITY ACCURACY NOISE DRIFT | ABSORBANCE, % TRANSMITTANCE, CONCENTRATION -0.5 TO 5.0 A ; -1.5 TO 125 %T ; ± 9999 C UP TO 3.5 A AT 260 NM ± 0.005 A AT 1.0 A, <0.00025 AT 0.0 A <0.00050 AT 1.0 A, <0.00080 AT 2.0 A RMS AT 260 NM <0.0005 A/HR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STRAY LIGHT | <0.08 %T AT 220 NM AND 340 NM, <0.1 %T AT 340 NM AND 400 NM, <1.0 %T AT 198 NM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DISPLAY | GRAPHICAL WITH LCD BACKLIGHT— 9.7 X 7.1 CM (3.8 X 2.8 IN) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KEYPAD | SEALED MEMBRANE WITH TACTILE RESPONSE KEYS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONNECTIVITY | USB TYPE A PORT FOR USB STICK (FRONT PANEL), USB TYPE B PORT FOR COMPUTER (REAR PANEL), USB TYPE A PORT FOR PRINTER (REAR PANEL) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DIMENSIONS | 30 W X 40 D X 25 H CM (11.8 X 15.7 X 9.8 IN) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WEIGHT | 8.6 KG (19 LB.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POWER REQUIREMENTS | 100 TO 240 V ; 50 TO 60 HZ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3

MAGNETIC STIRRER WITH PORCELAIN ENAMEL HOT PLATE:

| | |
|---|--------------------|
| POWER | : 550W |
| MAX STIRRING QUANTITY (WATER) (LITERS) | : 5 |
| STIRRING PADDLE (PTFE COATED) | : Q-19A(9 X 35MM) |
| MOTOR RATING INPUT(W) | : 18 |
| MOTOR RATING OUTPUT(W), | : 10 |
| SPEED RANGE RPM | : 100-1500RPM |
| SPEED TEMP. DISPLAY | : LCD |
| SPEED DISPLAY RESOLUTION (RPM) | : 1 |
| TOP PLATE MATERIAL | : PORCELAIN ENAMEL |
| DIMENSION OF TOP PLATE(MM) | : 135MM |
| HEATING POWER(W) | : 500W |
| TEMP. RANGE | : UPTO 340°C |
| CONTROL ACCURACY OF HEATING TEMP. | : 1°C |
| RESIDUAL HEATING WARNING ALARM | : ABOVE 50°C |
| CONTROL ACCURACY OF HEATING TEMP.WITH PT-1000 | : 0.2°C |
| EXTERNAL TEMP SENSOR | : PT1000 |
| DIMENSION(W X D X H)MM | : 280 X 160 X 85 |
| POWER SUPPLY | :220/240V,50HZ |

1

4

BENCHTOP PH/ION METER:

- Standard PH RANGE: -2.000 TO 20.000; RESOLUTION: 0.1, 0.01, 0.001; RELATIVE ACCURACY: ± 0.002
- ISE RANGE: 0 TO 19999 PPM; RESOLUTION: UP TO 4 SIGNIFICANT DIGITS; RELATIVE ACCURACY: ± 0.2 MV OR ± 0.05 % OF READING, WHICHEVER IS GREATER; UNITS: PPM, M, MG/L, %, PPB, NONE'
- UPTO 6 POINTS CALIBRATION WITH POINT TO POINT SLOPE, INCREMENTAL TECHNIQUES, NON – LINEAR SELECTABLE AUTO BLANK AND LOW CONCENTRATION RANGE STABILITY.
- AUTO READ FACILITY TO LOCK IN THE STABLE READING ON SCREEN.
- FOUR CHANNELS TO MIX AND MATCH IN ANY COMBINATION. **A VARIETY OF MODULES THAT CAN BE PLACED IN ANY OF THE FOUR CHANNELS.** NO NEED TO TURN OFF METER TO SWITCH MODULES. METER CAN AUTOMATICALLY RECOGNIZE MODULE CHANGES.
- NON-VOLATILE MEMORY THAT HOLDS UP TO 2000 DATA POINTS WITH TIME AND DATE STAMP.
- STORES UP TO 10 METHODS PER CHANNEL ALLOW FOR CUSTOMIZED PROCEDURES TO DIFFERENTIATE BETWEEN TESTS AND/OR USERS.
- TWO USB AND A RS232 PORT MAKES FOR EASY DATA TRANSFER AND UPDATING METER SOFTWARE.
- OPTION TO CONTROL SAMPLE MIXING DIRECTLY FROM THE METER WITHOUT A SEPARATE STIR PLATE WHEN USING WITH THE STIRRER PROBE.
- FACILITY TO EDIT CALIBRATION INDIVIDUALLY, WITHOUT PERFORMING THE TOTAL CALIBRATION PROCESS.
- IP54-RATED HOUSING HANDLES SPLASHES AND CLEANS UP EASILY.

SUPPLY SHOULD INCLUDE

MAIN METER WITH PH/ISE/TEMPERATURE MODULES; ELECTRODE ARM WITH REDESIGNED HOLDER AND UNIVERSAL POWER ADAPTER.

1

| | | |
|---|--|---|
| 5 | <p><u>FLUORIDE ELECTRODE:</u></p> <ul style="list-style-type: none"> • ELECTRODE BODY: ION PLUS SURE FLOW COMBINATION EPOXY BODY FLUORIDE ELECTRODE; • DETECTION RANGE – 0.02 PPM TO SATURATED; • TEMP. RANGE – 0 TO 80°C; • CONNECTOR TYPE – BNC WATERPROOF. | 1 |
| 6 | <p><u>AUTOCLAVES / REACTORS / PRESSURE VESSELS:</u></p> <ol style="list-style-type: none"> a) Volume & M.O.C 100ml net filling capacity made from SS 316 solid bar stock (no welding) & all wetted parts of SS 316. b) Design Pressure 100 Bar (Continuous safe working pressure is 85 % of the design pressure) c) Maximum working Temperature 300 deg. C. d) Nozzles & Fittings <ol style="list-style-type: none"> i) External Fittings: Pressure gauge, vent valve, safety rupture disc (Inconel) (Certified by original manufacturer), gas inlet-valve & liquid sampling valve mounted on common dip tube. Solenoid valve at the inlet of cooling coil pipe for automatic cooling. Note: All valve end connections shall be ¼" BSPM. ii) Internal Fittings: Single tube in tube out type cooling pipe &, thermowell (with temp. sensor), dip tube. e) Body & Head Sealing PTFE Gasket with split clamp type quick opening system with clamp bolts. Body clamps shall be with clit / latches to prevent flying off of clamps in case of over pressure. f) Motor & drive ¼ H.P AC Motor and variable frequency drive with 100-1450 RPM infinitely variable speed & digital RPM indication. Motor shall have 3 piece quick & maintenance free connect/disconnect motor coupling for ease of operation. (in place of spring loaded clutching). g) Shaft Sealing Zero leakage Magnetic drive coupling. (Maintenance free) h) Stirrer 4 bladed turbine stirrer i) Heating External electrical ceramic band heater with insulation & with high temperature steel cladding & provision to connect heater temperature sensor. It shall have insulated heater plate to prevent thermal shock to operator. j) Control Panel SS control panel with Programmable P.I.D temperature controller (Make: PPI, Model: Neuro 102a/102ac, Programs: 16 ramp/soak with OSIH over shoot inhibit parameter to control overshoot with standby mode to cut off heating & cooling) with high temperature alarm system & motor speed controller mounted on it. The panel shall QAS-B-054...NIT Rourkela Comp Name : sanjana Time :7/23/2018 2:02 PM be Screw less design with push lock enclosure, PVC Cable tray for internal wiring, safe & rugged metal clad military grade lockable plug sockets for all the sensors, heaters & motors (for tight connection & safety) . k) Mains Power Supply 1ϕ, 220VAC \pm 10%, 50Hz l) Mounting Mounted on Table top with polishing of complete autoclave. m) SS Pr. Regulator with self-venting for releasing the pressure, pressure gauge & 4m long flexible hose pipe with NRV for 0-140 bar O/P pressure for H2 gas & adaptor for N2, O2 or air cylinder. | 1 |