

**ENVIRONMENTAL POLLUTION MONITORING LABORATORY, DEPARTMENT OF CIVIL  
ENGINEERING**



**National Institute of Technical Teachers' Training and Research**  
*(Ministry of Education, Govt. of India)*  
Block-FC, Sector - III, Salt Lake City  
Kolkata - 700 106

## About Us

National Institute of Technical Teachers Training and Research (NITTTR), Kolkata was born in 1965 as Technical Teachers' Training Institute, Calcutta. This was the first of such four institutes (other three being at Chandigarh, Bhopal and Chennai) established by Department of Education, MHRD, Govt. of India as fully centrally funded autonomous institution. The primary focus of the institute is to provide in-service training to the teachers & staff of Degree & Diploma level technical institutions like engineering colleges, polytechnics, pharmacy colleges, architecture colleges, management institutes, industrial & business organizations and conducting activities related to the quality improvement of the technical education system of the country. Government of India, in 2003, accorded national status to this Institute, (along with the 3 sister institutes) in recognition to the expert service rendered for overall improvement of quality of Technical Education system.

Some of the notable national level projects in which the Institute is associated are Formulation of Tech. Ed. QIP proposal, Facilitating PWD Scheme, Consultancy of World Bank assisted Tech. Ed. III project, Developing Curriculum & Learning materials for National Vocational Education Qualification & Certification Framework, Serving as Nodal agency to Community Polytechnic Scheme etc.

The institute has highly qualified faculty members and excellent infrastructural support in the form of well-equipped laboratories, library and other resources. The institute will also focus on production of multi-media learning materials, textbooks, laboratory manuals, video programmes to technical and vocational institutions.

The focal activities of the Institute are Short Term Training, Curriculum Development, Learning Resources Development, Research, Educational Management and Extension Services.

The Institute has established extension centres at Guwahati and Bhubaneswar for reaching out to its clients. The new mandate of the Institute has extended its clientele catchments area outside the country encompassing the Technical & Vocational Institutions of particularly SAARC & ASEAN countries.

### **Environmental Pollution Monitoring Laboratory at NITTTR, Kolkata**

This Environmental Pollution Monitoring Laboratory is well set for providing the following value added services to the industries, institutions and individuals.

- Training programme based on theoretical and practical aspects of Environmental Pollution, Control and its Management.
- Environmental Consultancy
- Analytical Services

#### **A) Training Programmes:** In the areas of

- Environmental Pollution.
- Pollution control and monitoring techniques.
  - Water Quality Monitoring – potable and industrial use.
  - Industrial Pollution Control and its management.
  - Environmental Protection.
  - Pollution Abatement.
  - Hazardous Waste Management.
  - Laboratory Experimentation in Hydraulics, Engineering Chemistry, Environmental Chemistry, Water Pollution, Air Pollution, Noise Pollution, Soil Pollution, Public Health Engineering etc.

#### **B) Environmental Consultancy:** In the areas of

- Effectiveness study of a water and wastewater treatment plant.
- Water and wastewater analysis to meet Pollution Control Board requirements.
- Wastewater management with respect to its treatment, quality and monitoring procedure.
- Municipal water management – treatment, clarification and quality control for portable use.
- Cost effectiveness study with ROI calculation.
- Oily waste management.

- Right product selection and dose optimisation study.
- Air pollution and its monitoring techniques.
- New laboratory set up.
- Environmental Pollution – Laboratory Experimentation, Master Thesis, Project Work for Diploma, B. Sc., B.E & M.E students.
- Rural water quality monitoring.

**C) Analytical Services:** In the areas of

- Industrial wastewater analysis to meet the stringent requirements of Pollution Control Board.
- Drinking water analysis as per PHED/WHO guidelines.
- Power plant utilities and water testing – cooling water and boiler water analysis.
- Agriculture water analysis – fertility analysis and irrigation water quality assessment.
- River water, sea water and bore well water analysis.
- Municipal wastewater analysis.
- Environmental testing to monitor water quality for site remediation surveys, assess emergency situations such as flooding or other disasters and monitor rivers and lakes.
- Water formed Scale-deposit analysis.
- Soil analysis

**The Laboratory has the following Sophisticated Instruments**

- Atomic Absorption Spectrophotometer, Agilent, USA.
- DR-6000 UV-VIS Spectrophotometer – HACH CO., USA, BOD Trak Reactor – HACH CO., USA, COD Reactor – HACH CO., USA
- Flame Photometer. VIS- Spectrophotometer
- pH meter, Conductivity meter, Turbidity meter, Jar testing apparatus, Sludge De-watering apparatus, Sludge Volume Index Apparatus, E. Coli and Total Coliform count Kit, TVC Kit, Colony Counter, DO-meter, Muffle Furnace, Air-oven, Electronic Analytical Balance – Mettler, Toledo, High Volume Air Sampler, Auto-Exhaust gas analyser, Lux meter, Db-meter
- Glass column for heavy metal removal

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**List of Facility**

**I. Water and Wastewater Analysis Lab**

<b>Sl. No.</b>	<b>Name of Equipment</b>	<b>Make / Model</b>
1.	Atomic Absorption Spectrophotometer with Graphite Furnace Hollow Cathode (HC) Lamp Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Mercury (Hg), Molybdenum (Mo), Lead (Pb), Zinc (Zn)	Model: Agilent 240 AA, Make: Agilent Technologies, USA
2.	DR 6000 UV – VIS Spectrophotometer	Make: Hach, USA
3.	DR 5000 UV-Visible Spectrophotometer	Model: DR / 5000, Make: Hach, USA
4.	Portable Colorimeter	Model: Move 100, Make: Merck
5.	Portable Colorimeter	Model: DR900, Make: Hach, USA
6.	pH Meter: Microprocessor controlled pH meter	InoLab pH 730, Make: WTW, USA
7.	pH Meter built in printer	Model: inoLab pH 7310P, Make: WTW, USA
8.	Conductivity/TDS Meter	InoLab Cond 720, Make: WTW, USA
9.	Turbidity Meter, , Laboratory Turbidimeter	Model: 2100N, Make: Hach, USA
10.	Portable Turbidity Meter	Model: 2100Q, Make: Hach, USA
11.	Jar Test Apparatus (Six Jar)	Make: SONAR, India
12.	Jar Tester: Programmable Six Paddle	Model: 26317-02, 26925-00, 26928-00 Make: Hach, USA
13.	Jar Test Apparatus	Make: Phipps & Bird, USA
14.	Portable Floc Tester / Jar Tester	Model : ET730, Make: Lovibond, UK
15.	Flame Photometer	Model No.: 126, Model No.: 128, Make: Systronics, India
16.	BOD Trak Apparatus	Make: Hach, USA
17.	Multi-Parameter testing instrument	Model: HQ40d, Make: Hach

18.	OxiTop Control 6 Digital BOD Analyser with remote controller	Model: TS 606 – G / 2 – i, Make: WTW, USA
19.	COD Reactor	Make: Hach, USA
20.	Quanti – Tray Sealer Plus	Make : IDEXX, USA
21.	Bio-Safety Cabinet	Model No.: 4SB4, Make: AXIVA, SONAR, India
22.	Titration Instruments Automatic Titrator	Model No.: 848, Titrimo Plus, Make: Metrohm, Switzerland
23.	Titration Instruments	Model: Titronic Universal, Make: Scott, Germany
24.	Bench Top DO Meter	Model: inoLab Oxi 7310P, Make: WTW, USA
25.	Waterproof TDS Testr11+ Multi Range Tester with ATC & Temperature Display (0 – 100.0 ppm; 0 – 1000 ppm; 0 – 10.00 ppt)	Make: Eutech, Singapore
26.	TSS Portable Hand – held SS, Turbidity, Sludge Level System	Make: Hach, USA
27.	Pocket colorimeter with free and total Chloride	Model: MD110, Make: Lovibond, UK
28.	pH Tester (Waterproof pHTestr30)	Make: Eutech, Singapore
29.	TDS Tester (Waterproof TDS Testr11+ Multi Range Tester)	Make: Eutech, Singapore
30.	Nitrate Electrode for HQ 40d	Make: Hach, USA
31.	Autoclave: Steam Sterilizer- Vertical - (Fully Automatic-GMP Model), Size: 12” dia. × 20” ht., Cap: 35 lit.	Make: Revotek, India
32.	Motorized Sieve Shaker with different sieves	Model: AIM 054 – 1, Make: Aimil, India
33.	Digital colony counter	Make: SONAR, India
34.	IR Thermometer Tester with Laser Sighting, Temp. Range 18 – 60°C	Make: Eutech, Singapore
35.	Microscope: Tri-nocular Research Microscope with CCD Camera and Monitor	Model: DME, LEICA, Germany
36.	Bacteriological Incubator (Precision Type, GMP)	Make: RIVOTEK, India

37.	Digital Camera and Image Analysis Software for Lieca DME Trinocular Microscope	LEICA, Germany
38.	pH Tester for Food Application	Make: Eutech, Singapore
39.	Waterproof Pocket pH Tester: range: -1 to 15 pH	Make :EUTECH, Singapore
40.	Moisture Analyser (Halogen)	Model XM120, Make: Precisa Instrument AG, Switzerland
41.	B.O.D. Incubator	Model: GMP, Make: Rivotek, India
42.	Moisture Analyser: Halogen Moisture Analyser	Model: HB – 43 – S, Make: Mettler Toledo, Switzerland
43.	Colony Counter	Sonar, India
44.	Ozone Generator for Water, Fruits & Vegetable Purifier	Make: Kent, USA
45.	Electronic Single Pan Balance	Model No.: XS-104, Make: METTLER, Switzerland
46.	Balance : Electronic Precision Balance	Model: PL-202-S/00, Mettler, Switzerland
47.	Balance: Analytical Balance	Model: ML – 204, Make: Mettler Toledo, Switzerland
48.	Analytical Electronic Balance	Model: ME 104, Make: Mettler Toledo, Switzerland
49.	Analytical Electronic Balance	Model: MT 104T, Make: Mettler Toledo, Switzerland
50.	Semi-micro Balance	Model: MS 105DU, Make: Mettler Toledo, Switzerland
51.	Training Kit for E.Coli & Coli	Model: EZ – Fluo System, Make: Merck, Germany

## II. Air Pollution Lab

Sl. No.	Name of Equipment	Make / Model
1.	Auto Exhaust Gas Analyser (Multi Gas Analyser): For Petrol/CNG/LPG driven vehicle emission testing (ARAI approved), measures: CO, HC, CO <sub>2</sub> , O <sub>2</sub> engine RPM & Oil temp	Make: Netel, Model: NPM – MGA – 1, India
2.	Diesel Smoke Meter for Diesel Engine Emission (ARAI Approved), Measures: HSU, Engine RPM, Oil Temp by Piezo Sensor	Make: Netel, Model: NPM – SM – 111B, India
3.	Digital Lux Meter, Range: 0 – 50,000 LUX	Model: LX-101, Make: LUTRON, TAIWAN
4.	Digital Lux Meter, Range: 0 – 400,000 LUX	Model: 1102, Make: LUTRONE, Taiwan
5.	Microbial Air Sampler MAS-100 ECO	Model: MAS-100 ECO Make: Merck, USA
6.	Air Sampler: Fine Particulate Sampler	Model: APM 550, Make: Enviro-tech, India
7.	PM <sub>10</sub> Respirable Dust Sampler with gaseous sampling attachment	Model: APM 460, Make: Enviro-tech, India
8.	Air Purifier : Dr Aeroguard Air Purifier	Model: SCPR 1100, Make: Eureka Forbes, India
9.	Air Purifier : Dr Aeroguard Air Purifier	Model: SCPR 700, Make: Eureka Forbes, India
10.	High Volume Air Sampler (Respirable Dust Sampler):	Make: Netel, Model: NPM – HVS / R
11.	Stack Monitoring Kit	Make: Netel, Model: NPM – SMK – 1
12.	Microbial Air Sampler(MAS 100 NT)	Make: Merck, Germany
13.	Fine Dust Sampler with Consumable for SO <sub>2</sub> and NO <sub>2</sub> :	Model: NPM FDS 2.5, Make: Netel (India) Pvt. Ltd.
14.	Portable dB Meter : Digi-Sense Data Logging Sound Meter with NIST-Traceable Calibration	Make: Cole-parmer, USA

15.	Digi-Sense Wireless Digital Thermometer & Humidity Set	Make: Cole-parmer, USA
16.	Ozone Generator for Air Purification	Make : Kent, USA

### III. Accessories

Sl. No.	Name of Item	Make / Model
1.	Mini Rotary Shaker	Make: SONAR, India
2.	Soxlet Extraction Unit	Make: SONAR, India
3.	Macro-pipette Controller: (Manual pipette controller for 0.1 to 100 mL)	Make: MERCK, Germany
4.	SPINOT Magnetic Stirrer, 10 × 10 cm. with Hot Plate, 100 – 1000 rpm	Make: Tarsons, India
5.	Vacuum Pump – Portable, Oil Free	Make: RIVOTEK, India
6.	Micro Pipette Tripette, 100-1000 µL	Make: Merck, Germany
7.	Hotplate cum Stirrer	Model No.: SLK6, Make: SCHOTT, GERMANY
8.	Strong Acid Bottle Dispenser, Capacity: 10 – 50 ml., Graduation: 1 ml., Accuracy: 0.5%, Precision: 0.1%	Make: EMTECH COLOR, GERMANY
9.	Pipetting Device for All Conventional Glass Pipettes	Make: EMTECH COLOR, GERMANY
10.	Membrane Filter Assembly With Pump	Make: AXIVA, SONAR, India
11.	Digital Burette-Bottle Top Titration	Make: WALU, GERMANY
12.	Test tube Rotator	Make: Tarsons, India
13.	Refrigerator 310 Lit	Godrej, Model: Eon, India
14.	Spin win MC – 02	Make: Tarsons, India
15.	Multispin Stirrer	Make: Tarsons

16.	Water Bath Rectangular, Chamber Size: 12" x 10" x 4"	Model: digital, Make: SoNuu, India
17.	Water Bath Rectangular:, Chamber Size: 16" x 12" x 4"	Model: Digital & microprocessor based, Make: SoNuu, India
18.	Distillation Unit, Double Stage with Quartz boiler	Make: Rivotek, India
19.	Hot Air Oven	Model: GMP, Make: Rivotek, India
20.	Ultrasonic Cleaner: Tank Capacity: 20 lit, Tank Capacity Ltrs: 20.0 Tank Clear Size mm: 450 x 300 x 150	Make: Rivotek, India
21.	Water Bath Shaker: Type: Orbital, Tank Size L x B x H (mm): 400 x 375 x 250 ht, Tray size in mm: 325 x 325, Stroke Speed Per Min. (Without load): 20 – 200	Make: Rivotek, India
22.	Micro-oven with Grill, Capacity: 30 Litre	LG, South Korea
23.	Muffle Furnace Light Weight	Model: GMP, Make: Rivotek, India
24.	Peristaltic Pump	Make: Cole-Parmer, USA
25.	Incubator (Portable)	Model: Culture Mini - incubator Make: Merck, Germany
26.	Water Softener(Mini) for Water Purification,	Make : Kent, USA
27.	Reciprocating Refrigerated Water Bath Shaker	Make: Scientific Instruments, India
28.	Transferpette, Adjustable Volume, Cap.: 500 to 5000 µl	Make: Brand, Germany
29.	Transferpette, Adjustable Volume, Cap.: 1000 to 10000 µl	Make: Brand, Germany
30.	Bench – top Rack (for Transferpette, Adjustable Volume)	Make: Brand, Germany
31.	Transferpette Electronic, Adjustable Volume, Cap.: 100 to 1000 µl	Make: Brand, Germany
32.	Transferpette Electronic, Adjustable Volume, Cap.: 500 to 5000 µl	Make: Brand, Germany

33.	Stand (for Transferpette Electronic, Adjustable Volume: Upto 1000 $\mu$ l)	Make: Brand, Germany
34.	Stand (for Transferpette Electronic, Adjustable Volume: 500 $\mu$ l to 5000 $\mu$ l)	Make: Brand, Germany
35.	3 – device charging Stand with AC Adapter (for Transferpette: Electronic, Adjustable Volume)	Make: Brand, Germany
36.	Transferpettor, Digital Adjustable, Cap.: 1,000 to 5,000 $\mu$ l, Color: Red	Make: Brand, Germany
37.	Transferpettor, Digital Adjustable, Cap.: 2,000 to 10,000 $\mu$ l, Color: Orange	Make: Brand, Germany
38.	Station / Stand (for Transferpettor)	Make: Brand, Germany
39.	Pipette: Handy Step Electronic with PD (Precision Dispenser) Tip, Repetitive Pipette, with Charger	Make: Brand, Germany
40.	Peristaltic Pump	Make: Cole-Parmer, USA
41.	Bench – top Rack (for Transferpette)	Make: Brand, Germany
42.	All Quartz Double Distillation Unit (bottom drainage with pinchcock system)	Make: Borosil, India
43.	Variable volume Single Channel Fully Autoclavable- Micropipettes Excel	Make: Borosil, India
44.	Electronic Pipette Filling Device, Grey Body/Red Collet and plunger	Make: Borosil, India
45.	Magnetic Heater cum Stirrer	Make: Tarsons, India

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**WATER AND WASTEWATER ANALYSIS Tariff List**

Sl. No.	Parameters	Charge (in Rs.) For Industry/ External	Charge (in Rs.) For Academic Institution	Charge (in Rs.) For NITTTR Kolkata
1.	pH	100	80	0
2.	Turbidity	100	80	0
3.	Conductivity	100	80	0
4.	Temperature	60	40	0
5.	Colour	100	80	0
6.	Salinity	100	80	0
7.	TDS	100	80	0
8.	TSS	300	250	0
9.	TS	300	250	0
10.	Solids (Volatile)	400	300	0
11.	Solids (Fixed)	400	300	0
12.	Settleable Solids	500	400	0
13.	Sludge Volume Index (SVI)	1000	800	0
14.	Total Hardness	300	200	0
15.	Calcium Hardness	300	200	0
16.	Magnesium Hardness	300	200	0
17.	Chloride	350	250	0
18.	Fluoride	500	400	0
19.	Total or M Alkalinity	300	200	0
20.	P Alkalinity	300	200	0
21.	OH <sup>-</sup> Alkalinity	300	200	0
22.	CO <sub>3</sub> <sup>2-</sup> Alkalinity	300	200	0
23.	HCO <sub>3</sub> <sup>-</sup> Alkalinity	300	200	0
24.	Total Chlorine	300	200	0
25.	Residual Chlorine	300	200	0
26.	Sodium	400	300	0
27.	Potassium	400	300	0
28.	Calcium	300	200	0
29.	Magnesium	300	200	0
30.	Nitrate	300	150	0
31.	Nitrite	300	150	0
32.	Ammonium	300	150	0
33.	Sulphate	300	150	0
34.	Sulphide	300	150	0
35.	Phosphate	500	400	0
36.	Total Coliform	800	700	0
37.	E. Coli	800	700	0
38.	DO	200	150	0
39.	COD	700	600	0
40.	BOD	1000	900	0
41.	Oil & grease	500	400	0
42.	Phenol	500	400	0
43.	Iron	300	250	0

44.	Manganese	300	250	0
45.	Arsenic	1000	500	0
46.	Copper	300	250	0
47.	Lead	500	400	0
48.	Cadmium	500	400	0
49.	Chromium	500	400	0
50.	Nickel	500	400	0
51.	Zinc	500	400	0
52.	Aluminium	500	400	0
53.	Mercury	500	400	0
54.	Cobalt	500	400	0
55.	Silica	500	400	0
56.	Detergent	500	400	0
57.	Dosage Optimization Study(1 trial only)	5000	4000	0

All charges are excluding of GST. It will be charged at actual.

***For details please contact:***

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