



DEPARTMENT OF CIVIL ENGINEERING
ENVIRONMENTAL ENGINEERING LABORATORY

Environmental Engineering Laboratory was established in 2005-06. It is sound equipped to meet the academics and R&D requirements with a covering area of 179 m². Modern equipment's are added periodically keeping abreast of latest technological advancements which in turn helps us to render assistance in carrying out innovative projects and to maintain stringent quality and accuracy in our test procedures. Digital pH meter, Turbidity meter, Conductivity meter, BOD Incubator, COD reflux unit, DO & TDS analyzer, Muffle Furnace, Hot Air oven, UV-VIS spectrophotometer, Colorimeter, Nephelometer, Kjeldhal Apparatus, Sound level meter, Gaseous Pollutants sampler, Respirable dust sampler are the major highlights of the laboratory. In this laboratory, quality brand chemicals like E.Merck, Fischer scientific and qualigens are used for accuracy and reliability of results.

The detailed descriptions of the equipment are listed below:

a) Gaseous Pollutants Sampler for Indoor/Outdoor Air Quality Monitoring

Manufacturer: Envirotech Instruments Private Limited, Delhi

Model: APM433

The APM 433 Gaseous Pollutants Sampler has been designed for monitoring Gaseous Pollutants like SO₂, NO₂, Cl₂, H₂S, O₃, NH₃ etc. in ambient air. The APM 433 is an independent stand-alone monitoring instrument. A suction pump is also made an integral part of the sampler, besides a flow-meter, time totalizer and timer. Sampled air is bubbled through suitable reagents that absorb specific gaseous pollutants and the absorbing media analyzed as per standard wet chemical methods. Tests are performed as per Indian Standards under experienced supervision.



Gaseous Pollutants Sampler for Indoor/Outdoor Air Quality Monitoring

b) Respirable Dust Sampler

Manufacturer: Envirotech Instruments Private Limited, Delhi

Model: APM460NL

Advantages:

Owing to its modular design, APM 460 NL can be easily paired with a gaseous sampling attachment (for monitoring SO₂, NO_x, NH₃, Ozone etc.) as gaseous sampling requires only a few LPM of air flow. Tests are performed as per Indian Standards under experienced supervision.

Specifications:

Flow Rate:	0.9 – 1.4 m ³ /min free flow
Particle Size:	Particles of 10 microns & below collected on Filter Paper holder. SPM bigger than 10 microns collected in a separate sampling bottle under the cyclone.
Sampling Time:	28 hours (maximum)
Sampling Time Record:	0 to 9999.99 hrs. recorded on a Time Totalizer
Power requirement:	Nominal 220 V, Single Phase, 50Hz AC mains supply. For proper operation and safety a good earth connection is mandatory
Size & Weight:	430 x 320 x 930mm, 45 Kg
Automatic Sampling:	24hrs. programmable timer to automatically shut off the system after pre-Control set time interval.



Respirable Dust Sampler

c) UV-VIS Digital Spectrophotometer

Manufacturer: Systronics, Gujarat

Model: Sys118

UV/Vis spectroscopy is routinely used in analytical chemistry for the quantitative determination of different analysts, such as transition metal ions, highly conjugated organic compounds, and biological macromolecules. Spectroscopic analysis is commonly carried out in solutions but solids and gases may also be studied. Tests are performed as per Indian Standards under experienced supervision.

Specifications:

Optics	Complete Mirror Optics with 1200 groves per mm grading
Wavelength Range	200 – 999.9 nm
Error indication:	Over Range, Under Range and Low Battery
Accuracy	± 0.1 nm
Spectral Bandwidth	2 nm



UV-VIS Digital Spectrophotometer

d) SLM 100 Sound Level Meter

Manufacturer: Envirotech Instruments Private Limited, Delhi

Model: SLM 100

A sound level meter is a measuring instrument used to assess noise or sound levels by measuring sound pressure. Often referred to as a sound pressure level (SPL) meter, decibel (dB) meter, noise meter or noise dosimeter, a sound level meter uses a microphone to capture sound. The sound is then evaluated within the sound level meter and acoustic measurement values are shown on the display of the sound level meter. Tests are performed as per Indian Standards under experienced supervision.

Specifications:

Accuracy / Class:	Type II designed for field use Conforming to BIS 15575 (Part1) 2005
Measurement range:	34 to 134 dBA in three 50 dB overlapping ranges
Error indication:	Over Range, Under Range and Low Battery
Frequency Weighting:	“A” type as per IS 15575 (Part1) 2005

Time Weighting:	SLOW and FAST as per IS 15575 (Part1) 2005
Measurements:	Sound Pressure Level (SPL), MIN SPL, MAX SPL, LEQ, Sound Exposure Level (SEL) and run time continuously available on the display by selecting appropriate display screen
Display:	LCD 16 Character, 2 Line Display with 0.1 DB resolution
Operation Modes:	Continuous and Recording in Continuous Mode SLM100 displays the current SPL level, LEQ, SEL etc. for the duration of current session of operation. In Recording Mode, current values of above parameters are displayed on the screen and LEQ, MIN SPL, MAX SPL and SEL values integrated over a minute are recorded in the built-in data logger. The SLM100 allows the user to record multiple files making it possible to make a detailed survey at several locations before downloading data to a PC for Analysis
Memory Capacity:	In built data logger can store more than 24 hours data (at 1 minute intervals) in non-volatile Flash Memory
Data Download:	In-built RS232 Serial Port for direct interface to a PC
Software:	Windows compatible Software that allows data download to a PC and makes the data available in an Excel Spreadsheet for analysis and report preparation
Battery:	A re-chargeable NiMH battery pack allows operation for 10 hours or more. A built-in battery status facility allows the user to check useable battery hours and automatically prompts the user when the battery is running low. To prevent battery damage the instruments



Sound Level Meter

e) BOD Incubator

Manufacturer: Decibel Instrument Private Limited, Chandigarh

Model: DB5020

BOD Incubator is low temperature incubator. It can maintain a temperature range of 5°C to 60°C. It is of most important lab equipment in research centers, hospitals, micro biology, biotechnology, pharmaceutical labs.

Specifications

Chamber Volume / Shelves	250 Liter / 2 Shelves
Material /Temperature Range	Stainless Steel /5 to 75 degree Celsius
Automation Grade / Power Source	Automatic / Electric



BOD Incubator