

## **Lab facilities for School of Architecture and Built Environment**

### **Laboratories**

1. Engineering Graphics Lab
2. Surveying Lab
3. Material Testing Lab
4. Fluid Mechanics Lab
5. Concrete Lab
6. Environment Engineering Lab
7. Advance Environmental Engineering Lab
8. Remote Sensing and GIS Lab

### **Major Equipments in Laboratories**

#### **1. Engineering Graphics Lab**

**AutoCAD Educational Master suite licensed for 120 users consisting of:**

- Autocad2011
- Autodesk MEP and Mep3d
- Autodesk 3Dmax
- Autodesk revit
- Autodesk vault
- Autodesk Navisworks
- Autodesk Inventor and Autodesk Robot Structural Analysis

#### **2. Surveying Lab**

- Clinometer
- Digital Planimeter
- Auto Level
- Digital Level
- Electronic Theodolite

- Total Station : 2" Accuracy
- Total Station : Motorized, 2" Accuracy, Semi Automatic
- Robotic Total Station, 2" Accuracy
- Hand Held GPS
- Single Frequency GPS
- Dual Frequency DGPS

### **3. Fluid Mechanics Lab**

- A floor standing unit for studying cavitation.
- Comprehensive system for studying a wide range of Hydrostatics and Properties of Fluids experiments.
- Experimental setup for head loss in Pipes due to sudden contraction & expansion.
- Falling Sphere Viscometer and Drag Coefficient measuring unit.
- Gravimetric Hydraulics Benches.
- Hydrogen Bubble based Flow Visualization setup for boundary layer theory.
- Real Time Computer Controlled Experimental setup of Pipe flow Measurement for coefficient of friction losses due to friction in pipe lines, due to different diameters, bend, sudden contraction & expansion.
- Unit for Discharge over a Notch.
- Unit for Flow Measurement & Bernoulli's equation.
- Unit for Jet Trajectory and Flow through an Orifice.
- Unit for study and comparison of pressure measurement devices.
- Unit for the study for flow measurement using and calibration of a Pitot Tube, Orifice Meter, Venturi Meter and Nozzle, and demonstration of the boundary layer effect.
- Unit for the visualization and study of Laminar and Turbulent flow and Reynolds' Number.
- Venturi meter Unit.
- Volumetric Hydraulics Benches.

#### **4. Material Testing Lab**

- Strain Controlled Universal Testing Machine (1000KN)
- Brinell Hardness Testing Machine
- Dynamic Mechanical Analyser
- Impact Testing Machine ( IZOD/ CHARPY)
- Rockwell Hardness Testing Machine
- Spring Testing Machine
- Torsion Testers
- Vicker Hardness Testing Machine

#### **5. Concrete Lab**

- Strain Controlled Universal Tensile Machine (2500KN)
- Compression Testing Machine (2000KN)
- Cement Testing Equipments
- Loading Frames

#### **6. Environment Engineering Lab**

- Analytical Balance
- BOD Incubator
- COD Digestion Reactor
- Conductivity/TDS meter
- D.O. Meter/ Titration
- Double Distilled Water Unit
- Flame Photometer
- Furnace, Muffle
- Hot Plate
- Incubator Shaker
- Magnetic Stirrer
- Oven with Thermostatic Control

- Ozone meter
- pH meter
- Pippetes
- Samplers
- Turbidity Meter
- UV-Visible Spectrophotometer
- Water Bath
- Whirlmatic Motor less Magnetic Stirrer

## **7. Advance Environmental Lab**

- Aeration Unit
- Aerobic Water Purification Pilot Plant
- Anaerobic Digester
- Anaerobic System
- Analytical Balance
- Anions & Cations
- Atomic Absorption Spectrophotometer
- Auto Titrator
- Automated Pilot Plant With Filter Press and Microfilter
- Automatic Weather Monitoring System
- Biological Oxygen Demand Analysis System
- BOD Incubator
- BOD Reagent Set W/Bottles
- Bomb Calorimeter
- Coagulation, Flocculation And Settling Pilot Plant
- COD Digestion Reactor
- Complete Water Quality Lab
- D.O. Meter/ Titration
- Digital Colony Counter (Elect.)

- Digital Titrator For Acidity, Alkalinity And Hardness
- Filtration Pilot Plant
- Fine Particulate Sampler
- Fluoride Kit
- Gas Chromatograph
- Gaseous Pollutants Sampler
- Gaseous Pollutants Sampler
- Handy Sampler
- Horizontal Laminar Flow Cabinet
- HPLC system
- Incubator
- Incubator Shaker
- Microbiological Test Kit For Total *Coliform* And *E. Coli* (MEL/MPN)
- Microprocessor Pre-Programmed Portable Spectrophotometer
- Nitrate Kit
- Noise level meter
- Oil& Grease Analyser
- Recirculating Water Pump for fumes aspiration
- Respirable Dust Sampler
- Reverse Osmosis Pilot Plant
- Scanning Electroscopic microscope (SEM)
- Sedimentation Studies Apparatus
- Sludge Electronic Microscopy (SEM)
- Titration Workstations
- TOC DIGESTION REACTOR
- Total Organic Carbon (TOC) Analyser & Reagent Set
- Ultrasonic Flow Meter
- Ultrasonic Cleaning Bath
- Viscometer
- Vortex mixer V1 plus

- Water Purification Pilot Plant
- Water Purification Pilot Plant
- Water Treatment Pilot Plant
- Whirlmatic Motorless Magnetic Stirrer

## **8. Remote Sensing/GIS Lab**

- ArcGIS Software
- ERDAS Imaging Software
- E-Cognition Software
- A0 Size Scanner
- A0 Size Plotter
- 3D Laser Scanner
- Ground Penetrating Radar
- 30 Workstations