



IIT – ANALYTICAL EQUIPMENT

UTP clients will be able to access laboratory equipment operated by IIT under a user-fee arrangement. IIT has two fully-equipped machine shops for fabrication of tools and prototypes. Fees vary according to the equipment used and the scope of project. A standard use agreement will simplify access and billing. To access analytical equipment, contact UTP Associate Director for Technology and Business Services at 312.567.3900. IIT equipment by department includes:

Particle Technology Crystallization Center

- Powder X-Ray Diffractometer
- Raman Microscope (785 nm laser)
- Optical (Polarized Light) Microscope & Stereomicroscope (Hot Stage Accessories)
- Dynamic Light Scattering Equipment/Particle Size Analyzers (for micron and submicron particles)
- Differential Scanning Calorimetry (DSC)

Department of Biological, Chemical & Physical Sciences

- UV-Vis Spectrometer
- Raman Microscope (785 nm and 514 nm lasers)
- Dynamic Light-Scattering (Malvern Nanosizer)
- Atomic Force Microscope
- Gas Chromatograph – Mass Spectroscopy
- High-pressure Liquid Chromatography
- Fluorimeter
- Dual Source Sputtering System
- X-ray Diffractometers
- Scanning Electron Microscope
- FT-NMR, 400mz
- IR Spectrometer
- Liquid Helium Cryostat

Department of Mechanical, Materials and Aerospace Engineering

- X-ray Diffractometer
- DSC/DTA/TGA (Simultaneous DSC/TGA analysis up to 1500C, in inert, oxidizing or reducing atmosphere.)
- Dilatometer (up to 1500C)
- Scanning Electron Microscope with EDS attachment
- Mechanical Testing Equipment (many different types) – user fees depend upon user requirements
- Transmission Electron Microscope

Department of Chemical Engineering

- Epival Interfako Interference Microscope
- CCD Digital Cameral (Lynxx 2000,3.04)
- Back Light Scattering Apparatus (i.e., Kossel diffraction) with 500nm lenses (Model 1559, Spectra Physics)
- Streaming Potential Apparatus to measure charge on solid surfaces
- Spinning Drop Interfacial Tensiometer
- Wilhelmy Plate Tensiometer
- UV-Vis Spectrophotometer
- Steady State Spectrofluorometer
- Argon Ion Laser
- Spectroscopic Ellipsometer
- Electron-Beam UHV metal evaporation system
- FTIR Microscope/Spectrophotometer

Note: Capabilities include transmission, reflection, grazing angle, and attenuated total reflectance probe. This instrument also 2-D mapping (manual only at this point).



Wireless Interference Lab

For the equipment below, user fees are dependent upon client requirements/protocol.

Object Name	Quantity	Description
■ COM Blocks	14	Various Component Blocks
■ Motorola Canopy	4	2 AP/2 Sub - comes with power over ethernet
■ Wireless cards, AP and routers	13	Various APs and Subscriber Units
■ Antennas	19	Various
■ Mixers	12	Mostly 5-2000 MHz
■ Amplifiers	20	Various frequencies & power levels
■ Spectrum Analyzers	7	Various frequency ranges to 40 GHz
■ Function Generators (signal/pulse)	13	Various with frequencies from 0 to 1 GHz
■ Oscilloscopes	19	Various with frequency ranges to 400 MHz
■ Frequency Counter	8	Various (10 kHz to 1.3 GHz)
■ Optical Equipment	2	JDS Fitel Series 7000 - variable optical attenuator
■ Test Units	9	Various Common ISM Band Devices
■ Misc Equipment	40	Voltmeters, Power Supplies, Filters, Simulators
■ Chambers	2	10x10x8 and roughly 3x4x3 feet Faraday Cages
■ Logic Analyzers	4	HP 16500C Logic Analysis Systems (>400MHz)

IITRI – ANALYTICAL EQUIPMENT

The Life Sciences Group (LSG) at IITRI operates a high-quality, industrial scale, AAALACaccredited facility in the UTP. IITRI has agreed to work with UTP clients for their pre-clinical, contract research needs. For general information about IITRI, go to www.iitri.org. A standard use agreement will simplify access and billing. IITRI equipment is shown below.

- Applied Biosystems/Sciex API 3000 LC/MS/MS equipped with Turbo Ion Spray and APCI sources
- Waters 2695 Alliance System with PDA Detector
- HP-6890 Gas Chromatograph with FID, NPD and TCD detectors
- Spectrophotometers
 - (1) UV-vis
 - (2) Infrared Luminescence
 - (3) Fluorescence
- Liquid Scintillation Counter
- High-speed and ultra centrifuges
- Waters 2695 Alliance System with UV-visible Detector (2 ea.)
- Waters Modular HPLC System with UV-visible Detector

Note: The following detectors are available for use with any of the above HPLC systems:

- (1) Fluorescence
- (2) Multi-channel coulometric electrochemical detector; and
- (3) Radiochemical flow detector.

- Waters Empower for control and data capture for HPLC and GC systems.

Note: Empower is installed on a server located in a remote secure location.

Access to the system is through 2 terminals in the Analytical Chemistry Laboratory.



UTP CLIENT COMPANY – ANALYTICAL EQUIPMENT

UTP clients will be able to access laboratory equipment operated by UTP companies under a user fee agreement. To access analytical equipment, contact UTP Associate Director for Technology and Business Services at 312.567.3900.

Equipment is listed by company and includes:

Martin-Protean

Location: Technology Business Center, 3440 South Dearborn Street

- Waters nanoAcquity ultra pressure liquid chromatography system
- Thermo Deca XP+ ion trap mass spectrometer

Nano LCMSMS Capability

Using a Waters nanoAcquity ultra pressure liquid chromatography system, in-line nanospray ionization, and a Thermo Deca XP+ ion trap mass spectrometer, Martin-Protean's nano LCMSMS setup generates peptide fragmentation spectra suitable for assignment from samples containing 100 fmols of material.

Protein Identification from Proteolytic Digests

Using the latest version of the Discoverer 1.0 peptide and protein assignment software (the most current replacement for Sequest) and years of experience assigning peptide spectra, Martin-Protean provides careful and thorough protein assignment from the peptide spectra generated from samples.