Department of

Electrical & Electronic Engineering

Electronic & Telecommunication Engineering

East Delta University, Bangladesh

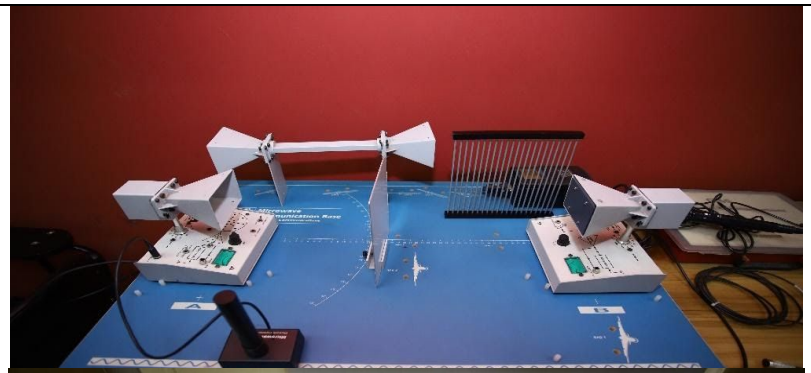
Lab Facilities

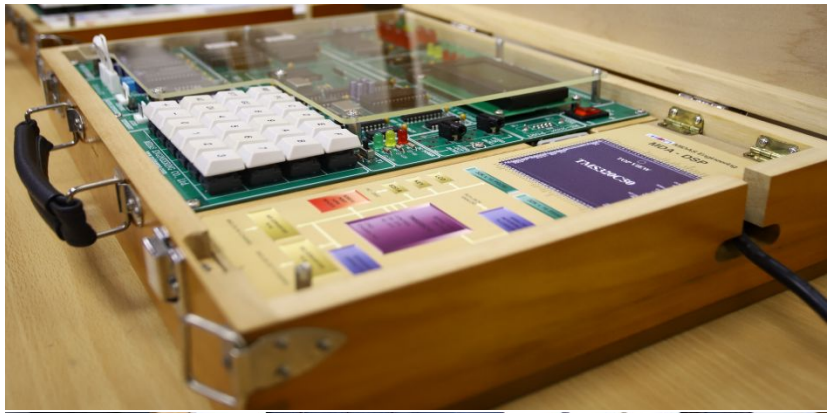
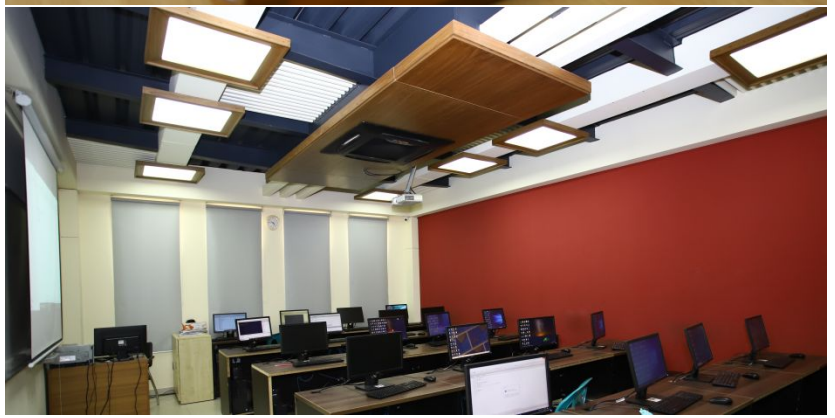
Lab Name	Lab Description & Resources	Lab Image
Circuit Lab	**Description:** Purpose of this laboratory is to provide the freshmen students with practical introduction to ac, dc electric circuit theories and operations. Experiments like power factor improvement, transient analysis, filter and resonance circuit operations are conducted. **Resources:** ○ Oscilloscope (Analog) ○ Signal Generator ○ Digital Multimeter & LCR Meter ○ Power Supply Unit ○ DC & AC Ammeter and Voltmeter ○ Transformer ○ Decade Resistance Box ○ Variable Capacitor & Inductor Box ○ Panel Board & Meter ○ Project Board (Digital & Analog) ○ Variable Potentiometer ○ Components and Accessories ○ Software: PSIM & PSpice	

Electronics and Power Electronics Lab	**Description:** This lab aims to implement and verify the concepts learnt from electronics courses. Students would be able to perform simulations of different electrical and electronic circuits and analyze transient, DC/AC sweep behavior. They would also be able to implement circuits with diodes, MOSFETs, OP-AMPs. **Resources:** ○ Digital Storage Oscilloscope ○ Oscilloscope (Analog) ○ Signal Generator ○ Digital Multimeter & LCR Meter ○ Variable Capacitor & Inductor Box ○ Project Board (Digital & Analog) ○ Variable Potentiometer ○ Electronic Components: BJT, FET, MOSFET, IGBT, Crystal diode, Zener diode, Photodiode, LED etc. ○ DC Power Supply ○ Power Electronic Devices and Drive Circuits Trainer ○ Industrial Electronics Lab Trainer ○ Buck & Boost Converter ○ 1 & 3 Phase Inverter Trainer ○ Ammeter and Voltmeter ○ Decade Resistance Box ○ Transformer ○ Software: PSIM & PSpice	 

Control System and Instrumentation Lab	**Description:** This lab aims to study the basic Concept of Open-loop & close-loop control system, PID control, PLC related experiments, electrical measurement techniques and tools using hardware based experiments and as well as software based simulation tools. **Resources:** ○ Sensor & Instrumentation Trainer ○ Digital Storage Oscilloscope ○ High Precision LCR Meter ○ Watt Meter ○ Energy Meter ○ Multimeter ○ Data acquisition hardware ○ Different types of sensors ○ Programmable Logic Controller ○ Automatic Control Trainer ○ Motor Control (Analog & Digital) ○ **Software** ○ Matlab ○ Labview	  

Electrical Machine Lab	**Description:** Electrical Machine lab introduces the students with electric machines (both AC and DC), namely the motors, generators, offers hands-on experiments to understand those machine operations. **Resources:** ○ Electrical Machines Training System ○ Electrical Load (Variable Resistor, Inductor and Capacitor) ○ Three Phase Induction motor, synchronous Motor ○ BLDC motor ○ DC motor & generator ○ AC Alternator ○ Electrical Speed Measurement Module ○ Single & Three Phase AC Variable Power Supply ○ Single & Three Phase Transformer	
Microprocessor Lab	**Description:** Students are taught how to generate hex code of the assembly program and input it to the 8086 microprocessor kit both manually and through serial port from the microcomputer. Students can also implement their microprocessor and microcontroller based projects using various processors, microcomputers and i/o devices. **Resources:** ○ Microprocessor Trainer ○ Universal programmer ○ Software: EMU8086 & Matlab	

Communication Lab	**Description:** This lab covers experiments related to analog and digital communication theory. This lab is featured with numerous experimental kits that allow the undergraduates to perform experiments on analog/digital modulation, multiplexing, various experiments on basic microwave principles and properties etc. **Resources:** ○ RF Signal Generator & Power Detector ○ Microwave Communication Trainer ○ Microwave Components: Directional Coupler, Attenuator ○ Digital Storage Oscilloscope	 

Digital signal Processing (DSP) Lab	**Description:** This lab covers the laboratory experiments related to system analysis and filter design using Matlab and J-DSP. This lab also has advanced DSP boards from world renowned Texas Instruments that will enable the students to implement DSP systems and run them in real-time. **Resources:** o DSP Trainer- advanced TMS320C6713 DSK boards from Texas Instruments o Hi-Performance Computer o Software: Matlab & Labview	 

Physics Lab	**Description:** Purpose of this laboratory is to provide the freshmen students with practical knowledge about some of the phenomena they Have studied in the Engineering Physics course and to develop the experimental skills. **Resources:** ○ Zero center galvanometer ○ Sodium lamp with scale & transformer ○ Newton ring apparatus ○ Experimental set up for verifying Ohm's law and Kirchhoff's laws ○ Traveling microscope ○ Mass-spring oscillation ○ Simple pendulum ○ Compound pendulum ○ Optical Microscope	

Computer Lab	**Description:** Design and simulation type lab work is performed in this Lab. It has 35 core-i5 workstations. A wide range of engineering and design software tools, including HSPICE, MATLAB, PSPICE, DSCH, Microwind, etc. are available in this lab. PSPICE and HSPICE are advanced industry standard EDA tools used worldwide in design and research. **Resources:** o Hi-Performance Computers o All Necessary software