Electric Circuits lab

The Electric Circuits Laboratory is located in Building #59 and room# 1019

In the Electrical Circuit Lab students can create their own electrical circuits and do measurements on it. In the circuits the students can use resistors, light bulbs, switches, capacitors and coils. The circuits can be powered by a AC/DC power supply or batteries. There is an ammeter, voltmeter, wattmeter and an ohmmeter. There is also a version of the Electrical Circuit Lab in which data can be collected. Students can analyse the collected data by creating graphs of the data and use the graphs in the conclusion tool.

The purpose of the electric circuits part of this laboratory is to practice essential laboratory measurement and report preparation skills, to reinforce the concepts and circuit analysis techniques, and to gain an increased understanding of some of the practical issues of electrical engineering circuit analysis and design. It is equipped with various types of resistors, variable rheostats, inductor banks, capacitor banks, dc and ac power supplies, switches, lamp boards, ammeters, voltmeters, analog and digital wattmeters, function generators, oscilloscopes, etc. In the laboratory classes, students are taught how to build electric circuits, safety rules of electric circuits, installation of common household appliances and how to write technical reports.

Bioelectronics Lab

The Bioelectronics Circuits Laboratory is located in Building #59 and room# 1017

This lab is intended to supplement, in a practical way, the material the students learn in Electronics. In each lab the student will perform three different kinds of experiments commonly used by professional engineers: (1) Basic exploration of electronic devices and circuits using predefined experiments, (2) Construction of experiments to determine the behaviour of devices and circuits, and (3) Design of electronic circuits using performance specifications. Successful completion of this lab will help to improve these critical engineering skills.

Students will be able to use standard laboratory equipment to analyze the behaviour of basic electronic devices and to design and construct simple circuits containing these devices, Such as Diode Characteristics, Half wave and full wave Rectification, BJT Transistors, MOSFET Transistors, etc. In addition, they will have the ability to use electronic test & measurement instruments and software, such as oscilloscopes, function generators, etc. Beside the student experiment sets, the laboratory also has simulation programs such as (MULTISIM simulation) to help students measure exact results and error.

Biomedical Instrumentation Laboratory

The Biomedical Instrumentation Laboratory is located in Building #11 and room# 030

Biomedical Instrumentation Laboratory is equipped with The exercises discussed are intended to introduce students to fundamental concepts of biomedical experimentation, from the instrumentation and data acquisition requirements to subsequent data analysis techniques. The fields of study currently being emphasized include topics such as electro neurology, cardiac electrophysiology, and cardiovascular hemodynamic. Each project consists of a set of experiments exemplifying the types of studies that are typical in each field. and other pertinent issues. Our lab exercises are all designed as PC-based experiments. They are controlled via original virtual instruments (VIs) developed with the LabVIEW programming environment or by using BioBench software. (LabVIEW and BioBench are both products of National Instruments, Austin, TX.)
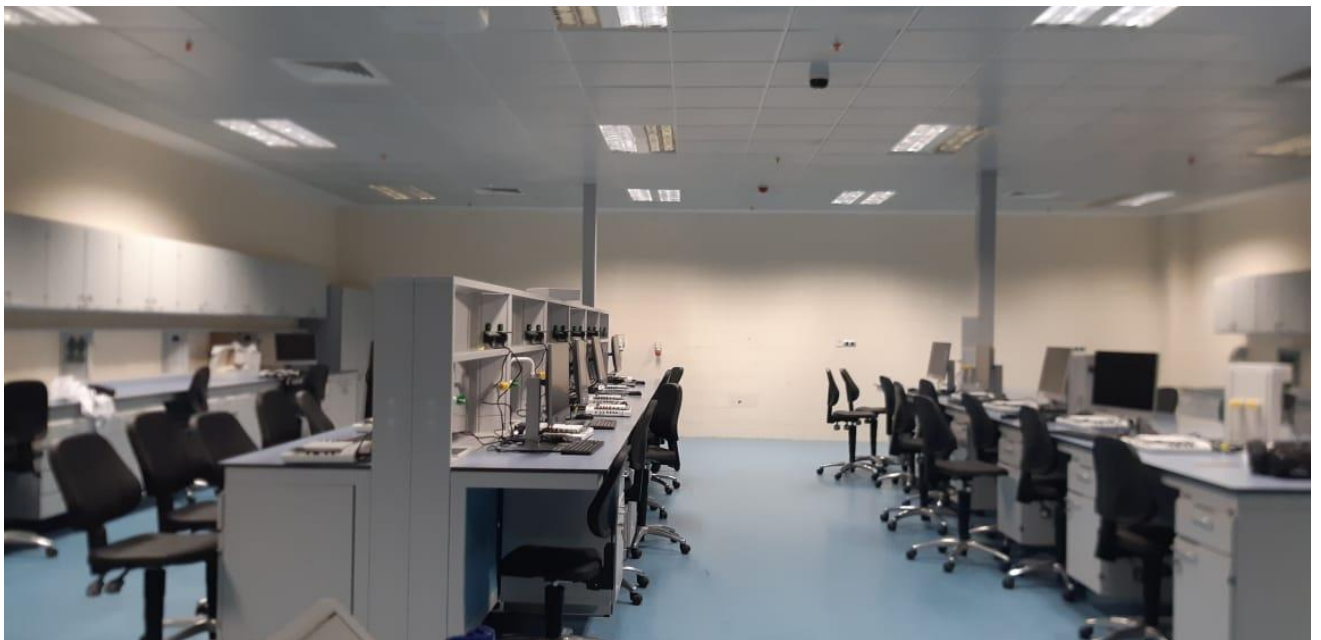
Engineering Programming lab

The **Engineering Programming** Laboratory is located in Building #59 and room# 3118

MATLAB is a programming language developed by MathWorks. It started out as a matrix programming language where linear algebra programming was simple. It can be run both under interactive sessions and as a batch job. This lab gives an aggressively a gentle introduction of MATLAB programming language. It is designed to give students fluency in MATLAB programming language. Problem-based MATLAB examples have been given in simple and easy way to make the learning fast and effective

Engineering design Laboratory

The **Engineering design** Laboratory is located in Building #59 and room# 3120

This laboratory focuses on the AUTOCAD programming. Students are taught on the know how's of Basic geometric constructions. Technical drawing. Computer Aided Design, CAD. Components description and methods of using CAD systems. CAD system tasks. Basics of construction and making documentation using computers. Basics of Autocad 2012, description of user interface, configuration of work parameters. Basics of coordinate systems,commands to create 2D drawings. Drawing of orthogonal projection, setting dimmension styles. Plotting techniques. Introduction to 3D modelling, user coordinate system (UCS) and Z-axis, commands for 3D modeling, 3D model views. AutoCAD Electrical to create diagrams, draw symbols and work with symbol libraries, draw electrical and control schemes, and generate documentation.