Zarqa University
Faculty of Science
Department of Physics
Course title: Physics Laboratory (2) / (0302112)

Instructor: Dr. Ibrahim Ghabar
Lecture's time:
Semester: First 2018/2019
Office Hours: Sunday, Tuesday, and Thursday: 11:00-12:00. Monday, Wensday:2:00-3;00

Course description:

In this course students are expected to learn about do Freshman Lab that cover general physics (2) course. Students perform 10 experiments of 3 hr/week duration, The experiments are: electric field happing, Ohm's law, Kirchhoff's laws, resistivity of a conductor, variation of resistance with temperature, Wheatstone bridge, charging and discharging of a capacitor, power transfer, tangent galvanometer, electrochemical equivalent of copper.

This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications, and to enhance their conceptual understanding of physical laws. Students attend three-hour lab/activity period per week. Use of a combination of computer-based and traditional lab exercises is expected and collaborative learning exercises will be used in both lab and recitation settings. The introduction of data acquisition and analysis methods (often making use of modern computer tools) will be stressed in the laboratory/activity period. The course is an important prerequisite for later work in many science and engineering disciplines.

Aims of the course:

1. To familiarize students with the basic knowledge of electric circuits.
2. To develop the students' understanding of the connection of electric circuits.
3. To develop the students' knowledge of electric devices and its practical application.
4. To improve students experimental capabilities and skills.
5. Better understand physics concepts by seeing their applications in experiments..
6. Understand the importance of observation and experiment in scientific inquiry.
7. Obtain basic laboratory experience in the methods and techniques used by scientists.
8. Report the results of experiments in a scientific fashion.

Intended Learning Outcomes: (ILOs)

A. Knowledge and Understanding

A1. Concepts and Theories: Use the principles of electric circuits and their properties electric devices and its practical application, experimental data reporting, treatment and learn theoretical bases for experiments

A2.Contemporary Trends, Problems and Research:
Comprehend the experimental plans.

A3.Professional Responsibility: Use computer, graphical and algebraic tools to analyze experiments.

B. Subject-specific skills

B1. Problem solving skills: Students solve problems on the board. I giving them group assignments and encourage group projects, but I can say that technology has become an integral part of their lives, and use computer programs to draw and solve mathematical equations, derivation and integration and they feel confident in this area.

B2.Modelinga nd Design:
Take experimental data, design experimental setup and do experiments in lab.

B3.Application of Methods and Tools:
Practical work and discussing results and solve problems on radiation detector properties (e.g. operating voltage, attenuation coefficient, and others).

C. Critical-Thinking Skills

C1.Analytic skills: Statistical treatment of experimental data and discussing experiments theory and methods.