Assiut University

Physics Department

LABORATORY MANUAL

Phys. 201

For Students of

Faculty of Science

Fall Semester, Academic Year 2009-2010

Dear Student

Welcome to the **Second Level Physics Lab.** hoping for you valuable and interesting work and by the end of the semester success in the course. Enjoy Learning Physics just as you enjoy your life. The following are our regulations you have to follow during the semester.

Before attending your laboratory session, you should always read the experiment you are going to do. Be aware that the Pre-Lab. reading enables you better understanding basics of the experiment and while attending the class you can do the experiment correctly. Information given in the first few Labs. will be much more detailed than that of the next subsequent Labs; many of the laboratory techniques you learn will be used repeatedly in other Lab. sessions. The only acceptable way to demonstrate your experimental results in graphical form is that by "Excel" computer program or similar computer programs. In the first Lab. session a discussion about Excel and how to use the most common tools of your experiments, namely the Oscilloscope, Function generator and different types of Multimeters, will be given. As you perform successively Lab. experiments, your scientific background and practical skills will improve and you should be less dependent on exact instruction from the Lab. Manual.

Student attending the Lab. late by more than10 minuets will **Loose** the corresponding two marks. Student late by more than 20 minutes can not attend the Lab. and he/she will be considered **Absent**. Absence of 25 % of the Lab. sessions during the semester may prevent you from attending the final Exam. In such a case your final grade of the Lab. work can be zero.

Be aware that **Cheating** during Exams and submitting experimental results or answer to the questions given by the end of each experiment which is not yours will be strongly punished according to the university regulations.

Be sure that organizing your work will save you a great deal of time and frustration. The 3 hours Lab. time can be subdivided according to the next proposal:

25-30 min	**General discussion**
80-90 min	**Practical work**
15-20 min	**Drawing graph by Excel**
15-20 min	**Answer questions**
15-20 min	**Experiment Correction and evaluation**

Before leaving the Lab. you have to correct and evaluate your work by the assistant. Be sure that your grade, in addition to the assistant name, signature and date of attending the Lab., have been recorded in your manual and in the files of the Lab. Six marks out of 10 marks for each experiment (A sum of 120 marks for the 12 experiments of the Lab.) are given for the experimental work including **Performance**, **Lab. attitude** and **Accuracy**. Two marks are given for the **attendance** and other two marks are given for **solving correctly questions** that can be found at the end of each experiment sheet. The total grad will be considered during the final course evaluation. You have to ask about the experiment you have to do in the next Lab. session in order to follow the exact way to do the experiment correctly.

A Mid-Term Exam., covering materials of experiments the student did during the first five weeks will be organized. Time and date of Exam will be announced in the proper time. In addition, student should be ready for Quick Quizzes during all the Lab. sessions.

Using Lab. equipment in a correct way is your responsibility. You have to think twice before connecting the AC power to the setup. Damage of any of the experiment components should be substituted by the student without delay. Attending the Lab. with food or drinks is not allowed. Please keep the Lab. table clean and in order.

By performing this Lab., you will learn:

Characteristics of different electric components, namely resistors, capacitors and inductors and their uses,
How to handle delicate electric and optical components,
New methods of measuring parameters of dc and ac currents, some useful electric circuits having technological applications,
Properties of interference, diffraction and polarization of light waves
Simple experiments describing properties of Electromagnetic Waves
How to analyze in a correct scientific way results of electric, magnetic and optical experiments.

Finally: We are constantly trying to improve the quality and instructional utility of your Lab. If you can think of any modification to the equipment or clarification to the Lab. manual please let us know. Your feedback is extremely important to us so, please do not hesitate to submit your suggestions to your instructor or assistant.

Study of Basic Physics Concepts in this Lab. will be enjoyed,
Good Luck

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Second Level Physics Lab.