

**University of Management and Technology**

**School of Science and Technology**

**Department of Physics**

**Course Code: NS-124L**

**Lab Title: APPLIED PHYSICS LAB**

**Program: BS-EE**

**Lab Work (Fall 2014)**

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| **Lab Policy** | Students are expected to perform experiments (as per attached list) related to the course work, analyze the data, draw conclusions, and write a report. Grades will be awarded based on student’s lab reports and a final exam in the lab. |
| **Grading**  **Policy for Lab work** | Continuous Assessments of Lab work 40 %  Final Viva- Voce at the end of the semester 60 % |
| **Make-up Labs** | If due to an unavoidable circumstance a student has to miss a Lab, then he/she should obtain an excuse for this from the instructor. The instructor will accept an excuse only if he feels that the student had a genuine reason. In an accepted case the instructor may allow the student to take a make-up session. |
| **Attendance**  **Policy** **for Lab** | Students missing more than 20% of the Labs. (excused or unexcused) will receive an “F” grade in the Lab work. |

Department of Physics

Applied Physics Lab (NS- 124L)

List of Experiments

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| **Week** | **Exp No.** | **Title of Experiment** |
| 1st | 1 | **Graphing**  To learn to quickly and accurately plot a graph; how to use graphical techniques to represent and analyze laboratory data. |
| 2nd | 2 | **Data Analysis and Presentation**  To learn how to analyze experimental data and to practice error analysis. |
| 3rd | 3 | **Measurement of thickness of a very thin sample**  To estimate the number of atoms in the thickness of a pencil line. |
| 4th | 4 | **Capacitors in series and parallel**  To measure the capacitance of a capacitor & to investigate the capacitance of capacitors in series and in parallel. |
| 5th | 5 | **Determination of capacitance of a capacitor by a graphical method**  To determine the capacitance of a capacitor by a graphical method. |
| 6th | 6 | **Dependence of Current on different combinations of Resistors in a Circuit.** To measure the current in a circuit depending upon the arrangement of resistors within the circuit and find the value of unknown resistance. |
| 7th | 7 | **Ohm’s Law**  To study Ohm’s law as applied to a “linear” DC circuit. To show the behavior of some “non-linear” circuit elements which do not obey Ohm’s law. |
| 8th | 8 | **Wheatstone Bridge**  To introduce bridge circuits and null detection method to measure the resistance of a conductor. To determine the variation of the resistance of a conductor with its length. |
| 9th | 9 | **Conversion of a Galvanometer to Voltmeter reading up to 6 volts**  To study how a moving coil galvanometer circuit can be modified to construct a voltmeter (reading up to 6 volt). |
| 10th | 10 | **Conversion of a Galvanometer to Ammeter reading up to 0.2 Ampere**  To study how a moving coil galvanometer circuit can be modified to construct an ammeter (reading up to 0.2 ampere). |
| 11th | 11 | **Earth’s Magnetic Field**  To measure the horizontal component of the earth’s magnetic field. |
| 12th | 12 | **Kirchhoff’s Laws**  To study Kirchhoff’s laws in the case of a two-loop circuit. |
| 13th | **Revision Week** | |
| 14th | **Lab Final Examination** | |
| 15th | Week for Preparation of Theory Final Examination | |

\* The listed sequence of the experiments may vary from student-to-student. However, each student must perform all the listed experiments.