NL 125 Applied Physics Lab

**Lab Work**

|  |  |
| --- | --- |
| **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**  | Laboratory Reports 12 Marks Final Examination 08 Marks |
| **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 “SA” grade in the Lab work. |

**OVERALL POLICY:**

* **Student has to pass both Course work and Lab work separately.**
* **Student failing in the Course work but passing in the Lab work, has to repeat both Course work and Lab work.**
* **Student failing in the Lab work but passing in the Course work, has to repeat Lab work alone.**

List of Experiments

|  |  |  |
| --- | --- | --- |
| **Week** | **Ex No.** | **Title of Experiment** |
| 1st |  Lab Orientation Week |
|  **Data Analysis and Presentation** |
| 2nd | 1 | To learn how to analyze experimental data and to practice error analysis. |
|  **Measurement of thickness of a very thin sample** |
| 3rd | 2 | To estimate the number of atoms in the thickness of a pencil line. |
|  **Capacitors in series and parallel** |
| 4th | 3 | To measure the capacitance of a capacitor & to investigate the capacitance of capacitors in series and in parallel. |
|  **Determination of capacitance of a capacitor by a graphical method** |
| 5th | 4 | To determine the capacitance of a capacitor by a graphical method. |
|  **Dependence of Current on different combinations of Resistors in a Circuit.** |
| 6th | 5 | To measure the current in a circuit depending upon the arrangement of resistors within the circuit and find the value of unknown resistance. |
|  **Ohm’s Law**  |
| 7th | 6 | 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. |
|  **Wheatstone Bridge** |
| 8th | 7 | 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. |
|  **Conversion of a Galvanometer to Voltmeter reading up to 6 volts** |
| 9th | 8 | To study how a moving coil galvanometer circuit can be modified to construct a voltmeter (reading up to 6 volt). |
|  **Conversion of a Galvanometer to Ammeter reading up to 0.2 Ampere** |
| 10th | 9 | To study how a moving coil galvanometer circuit can be modified to construct an ammeter (reading up to 0.2 ampere). |
|  **Earth’s Magnetic Field** |
| 11th | 10 | To measure the horizontal component of the earth’s magnetic field. |
|  **Kirchhoff’s Laws** |
| 12th  |  11 | To study Kirchoff’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.