Intermediate Physics Laboratory
PHYS 2129
Spring 2024

Lecture: Tuesday/Thursday 1.00 – 1.50 pm
Place: Physics Room 202

Laboratory: Tuesday 2.00 – 4.50 pm
Thursday 2.00 – 3.50 pm
Place: Physics Room 219

Instructor: Jason Summers
Email: jsummers@mst.edu
Office: 212 Physics

Laboratory Manual: Principals of Electronic Instrumentation (copy).

References: *Principles of Electronic Instrumentation* by A. James Diefenderfer and Brian E. Holton.
Basic Electronics: An Introduction to Electronics for Science Students by Curtis A. Meyer,
The Art of Electronics by Horowitz and Hill

Laboratory Schedule:

Date	Experiment/Assignment	Date	Experiment
Jan 16	Lab 1	Mar 14	Spring Recess
18	Assignment 2	19	Assignment 11
23	Lab 2	21	Lab 11
25	Lab 3	26	Spring Break
Jan 30	Lab 4	28	Spring Break
Feb 1	Lab 5	Apr 2	Lab 12
6	Assignment 6-1	4	Lab 13
8	Assignment 6-2	6	Lab 15
13	Lab 6	9	Magnetic Circuits
15	Assignment 7	11	Transformers
20	Lab 7	16	Basic Electrical
22	Assignment 8	18	Labview
27	Lab 8	23	Arduinos
29	Lab 9	25	Kicad/PCBs
Mar 5	Midterm Test	To be determined	Final Project
12	Lab 10		

Experiment Report:	Experiment reports must be turned by the date specified in Canvas. Each experiment will be graded at 100 point scale.
Assignments:	Special assignments have been created to help prepare for the upcoming laboratory. These include circuit simulations and homework problems. Each will be worth 100 points.
Late Submissions:	For each day the lab report or assignment is late, there will be a 5% deduction. The maximum deduction will be 50% after 10 days.

Grading Scale:	>89.5 % = A >79.5 % = B >69.5 % = C >59.5 % = D
Grade weight:	Laboratory reports, Assignments, and Projects: 60 % Midterm test: 20 % Final Project: 20 %

*Midterm test will be based on the materials covered in lectures, laboratory experiments and assignments.

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Lab Experiments and Assignments:

1. Ohm's Law
2. Kirchoff's Law
3. DC Circuits
4. AC Test Instruments
5. Transient RC Circuits
6. AC Circuits
7. LCR Circuits
8. Diodes I: Rectification and Filtering
9. Diodes II: Zeners
10. DC Power Supplies
11. Transistors
12. Op-Amps I
13. Op-Amps II
14. Oscillators

Possible Projects:

1. LabView Interface
2. Digital Counting Circuits
3. Measurement by Using Sensor
4. Data Collecting
5. Counter and detector
6. Controlling Circuits