

Oakland University

College of Arts & Sciences

Department of Physics

Winter 2021 PHY 1110: **(ON-LINE) GENERAL PHYSICS LABORATORY-II**
Friday AM Sec. (7:30 – 9:57 AM)

Lab Manual: General Physics Laboratory II (5th Edition, Kendall Hunt)
 (available at OU Bookstore: Cost \$26; From publisher: order online: Cost \$26 + shipping
<https://he.kendallhunt.com/product/general-physics-laboratory-ii-experiments>)

Instructors: Dr. Susan Bowyer and Dr. Rao Bidthanapally

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Office Hours: By appointment/email /or phone

Faculty In Charge: Gopalan Srinivasan Room: 186F, MSC Email: srinivas@oakland.edu
 Office hours: ONLY BY APPOINTMENT

Course Content, Goals and Objectives

This on-line laboratory course is on experiments in Electricity and Magnetism, Optics and Nuclear Physics.

You will have the opportunity to:

- learn how to use basic physical measuring devices;
- become familiar with selected physical laws and phenomena;
- get experience taking data and drawing conclusions from them;
- learn how to estimate and to combine experimental errors.

List of Experiments

Experiments 1 and 2: Ohm's law and DC and AC circuits

Experiment 3: Discharging and Charging a Capacitor

Experiment 4: Force on a Current Carrying Wire in a Magnetic Field

Experiments 5: Focal Length of a Lens and Image Formation

Experiment 6: Polarization of Light

Experiments 7 and 8: Diffraction and Interference of Light

Experiments 9 and 10: Helium and Hydrogen Line Spectrum

Experiments 11 and 12: Nuclear Counting Statistics and

Interaction of Radiation with Matter

• 12 experiments: will be done during the semester. Please read the Notes and Introductory comments in the lab manual for general information.

ON-LINE LABS: PROCEDURE

You need to have a copy of the manual (can be purchased from OU Bookstore or from the publisher).-

- One experiment will be done every week. Experiments are done in the same sequence as in the manual.
- **On Sundays we will upload on Moodle the following documents for the experiment to be done that week.**
 - Video of the experiment done by one of the instructors.
 - PPT presentation for the experiment.
 - Data sheets for the experiment.
- First read the manual carefully. Understand the basic physics, objective of the experiment, procedure, and analysis.
- The PPT presentation provides a summary of the experiment, the procedure, and analysis.
- Watch the video of the experiment.
- Write a brief introduction for the experiment in the data sheets provided. The introduction part must have a brief outline of the objective of the experiment, data to be collected and analysis to be done.
- Do the necessary graphing of the data and calculations.
- Answer all the questions in the analysis part.
- The conclusion will have comments on the accuracy of the estimated physical parameter, error analysis and comparison with accepted values for the parameters.

- **Reports:** *A report will be due after every 2 experiments.*

Report due dates (on a Friday every 2 weeks) are given in the syllabus.

Reports must be submitted on Moodle before 5 PM on due dates or as attachment in email to the instructors.

A complete report will have the Introduction, data, graphs, analysis, and answers to the questions (not the review questions) in the lab manual. Late reports will NOT be graded and will be counted as zero.

Quizzes

- **Half-hour quizzes** will be given on Moodle at the beginning of the class time on February 19 and March 26.

• **Grade determination**

Reports (12 experiments): 75% 2-Quizzes: 25%

Tentative grade scale:

100-95: A;

94-90: A-;

89-85: B+;

84-80: B;

79-75: B-;

74-70: C+;

69-65: C; 64-60: C-;

59-55: D+; 54-50: D; ≤ 49: F.

PHY 1110 PHYSICS LAB II (Fri-AM Sec.) Winter 2021

<u>DATE</u>	<u>Experiment</u>	<u>Remark</u>
Week of January 11	Ex.1	
Week of January 18	Ex.2	
		<i>Report 1 (Ex. 1&2) due before 5 PM on Friday Jan.22</i>
Week of January 25	Ex.3	
Week of February 1	Ex.4	
		<i>Report 2 (Ex. 3&4) due before 5 PM on Friday Feb. 5</i>
Week of February 8	Ex.5	
Week of February 15	Ex.6	
		<i>February 19 QUIZ 1 (Experiments 1-4) GIVEN ON MOODLE AT CLASS TIME</i>
		<i>Report 3 (Ex. 5&6) due before 5 PM on Friday Feb. 19</i>
Week of February 22	Winter Break – NO LAB—	
Week of March 1	Ex.7	
Week of March 8	Ex.8	
		<i>Report 4 (Ex. 7&8) due before 5 PM on Friday March 12</i>
Week of March 15	Ex.9	
Week of March 22	Ex.10	
		<i>March 26 QUIZ 2 (Experiments 5-8) GIVEN ON MOODLE AT CLASS TIME</i>
		<i>Report 5 (Ex. 9 and 10) due before 5 PM on Friday March 26</i>
Week of March 29	Ex.11	
Week of April 5	Ex.12	
		<i>Report 6 (Ex. 11 and 12) due before 5 PM on Friday April 9</i>

Add/Drops

The University's add/drop policy will be explicitly followed. It is the student's responsibility to be aware of the university deadline dates for dropping courses.

Reasonable Accommodations

Accessibility and Accommodations: It is the University's goal that learning experiences be as accessible as possible. Students with disabilities who have questions about course accessibility are encouraged to contact the instructor immediately. The Office of Disability and Support Services (DSS) is available to help. The DSS office is located in room 103A North Foundation Hall.

For more information, call 248-370-3266 or visit <https://www.oakland.edu/dss>

Policy on Academic Misconduct

The University's regulations that relate to academic misconduct will be fully enforced. Any student suspected of cheating and/or plagiarism will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of academic misconduct in this course may receive a course grade of F, in addition to any penalty assigned by the Academic Conduct Committee. Students found guilty of academic misconduct by the Academic Conduct Committee may face suspension or permanent dismissal. The full policy on academic misconduct can be found in the General Information section of the Undergraduate Catalog.

Excused Absence Policy

The University excused absence policy applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee.

For the excused absence policy, see <https://www.oakland.edu/provost/policies-and-procedures/>

Student Preferred Name/Pronoun Policy

Course rosters are typically provided to the instructor with the student's legal names. If you do not identify with the name that is listed with the Registrar's office, please notify me. I will gladly honor your request to address you by an alternate name or gender pronoun. For more information on indicating a preferred first name on university records, please visit:

<https://www.oakland.edu/uts/common-good-core-resources/name-services/>