



**ATENEO DE MANILA
UNIVERSITY**
Loyola Schools

COURSE SYLLABUS

A. COURSE INFORMATION

COURSE NUMBER	PHYS 10.02			NO. OF UNIT(S)	1
COURSE TITLE	Introductory Physics, Laboratory				
PREREQUISITE/S	N/A (Taken concurrently with PHYS 10.01)				
DEPARTMENT/ PROGRAM	Physics			SCHOOL	SOSE
SCHOOL YEAR	2023-2024			SEMESTER	Second Semester
INSTRUCTOR/S	Ramon M. delos Santos, PhD				
PLATFORM	Onsite	SECTION	CB-BC	SCHEDULE & VENUE	Thu, 10 AM –12 PM SEC-C 105 A

B. COURSE DESCRIPTION

This is a 1-unit course that aims to develop the student's analytical and critical thinking skills through a series of laboratory activities revealing physics laws and principles that are relevant to everyday life. It is taken concurrently with PHYS 10.01 (Introductory Physics, Lecture) to balance the theoretical and experimental experience of non-science undergraduate students.

WHERE IS THE COURSE SITUATED WITHIN THE FORMATION STAGES IN THE FRAMEWORK OF THE LOYOLA SCHOOLS CURRICULA	
✓	FOUNDATIONS: Exploring and Equipping the Self
	ROOTEDNESS: Investigating and Knowing the World
	DEEPENING: Defining the Self in the World
	LEADERSHIP: Engaging and Transforming the World

C. COURSE LEARNING OUTCOMES

Alignment of the Course to the Core Curriculum Learning Outcomes

(Please see **Appendix A** for detailed Core Curriculum Learning Outcomes)

The Ideal Ateneo Graduate: A Person of Conscience, Competence, Compassion, Commitment							
CCLO 1	CCLO 2	CCLO 3	CCLO 4	CCLO 5	CCLO 6	CCLO 7	CCLO 8
✓	✓	✓					

(As determined during the Core Curriculum Workshop, 15 Jan 2020)

By the end of this course, students should be able to:

COURSE LEARNING OUTCOMES
<p>CLO 1: Demonstrate effective communication skills in English and Filipino by</p> <ul style="list-style-type: none">a. explaining, in written and oral formats, the usefulness and limitations of the scientific method in their disciplines and in everyday life;b. discussing the results and analysis of experiments with peers and the instructor;c. writing scientific reports of selected experiments.
<p>CLO 2: Evaluate information and issues in various spheres of life using mathematical reasoning and statistical tools to process and manage data by</p> <ul style="list-style-type: none">a. using the scientific method as a guide in the design and performance of experiments;b. demonstrating accuracy, precision and objectiveness in the data collection;c. analyzing the experimental data using appropriate mathematical and statistical tools.
<p>CLO 3: Propose ways to address pressing social and ecological problems using appropriate critical approaches and scientific thinking by</p> <ul style="list-style-type: none">a. explaining the relevance of the experiments to real-life situations;b. adopting the scientific method in solving some real-life problems; andc. using the principles of science in understanding the nature of some social and ecological problems.

D. COURSE OUTLINE and LEARNING HOURS

Course Outline	CLOs	Estimated Contact or Learning Hours
Introduction to the course (ONSITE)		1.5 hrs
Activity 1: Measurements/Estimation (ONSITE)	All CLOs	3.5 hrs
Activity 2: Reaction Time (<i>Online; home-based</i>)	All CLOs	3.5 hrs
Activity 3: Static and Kinetic Friction (ONSITE ; data analysis)	All CLOs	3.5 hrs
Activity 4: Conservation of Energy (<i>Online; PhET simulation</i>)	All CLOs	3.5 hrs
Activity 5: Specific Heat (ONSITE)	All CLOs	3.5 hrs
Activity 6: Humidity (ONSITE)	All CLOs	3.5 hrs
Activity 7: Propagation of Light (<i>Online; PhET simulation and video analysis</i>)	All CLOs	3.5 hrs
Activity 8: Voltage, Current, Resistance and Electrical Power (<i>Online; PhET simulation</i>)	All CLOs	3.5 hrs
Culminating Activity or CA (<i>mostly ONSITE; refer to part K of the syllabus for the details of the intermediate outputs, and the corresponding schedules</i>)	All CLOs	10.5 hrs
		Total: 40 hrs

E. ASSESSMENTS AND RUBRICS

Assessment Tasks	Assessment Weight	CLOs
Laboratory Worksheets (<i>to be submitted every Thursday; students will form groups of at most four members</i>)	65%	CLOs 1-3
Lab Performance/Decorum (Individual Conduct) *	10%	CLOs 1-3
Culminating Activity (<i>to be discussed further</i>)	15%	CLOs 1-3
Peer Evaluation	10%	CLOs 1-3

* The "lab performance" component will be based on the student's active participation in the performance of the experiment. Deductions will be given for missed experiments. The "decorum" component will be based on the student's individual conduct. Deductions will be given for improper conduct in the laboratory. These may include eating or drinking within the laboratory, improper use of equipment, and violating laboratory rules.

RUBRICS: (for Essay Conceptual Questions in all assessments)

Excellent (A): The laboratory report is very clear, complete, organized, and well developed. The report displays a solid conceptual understanding of physics concepts, and articulates the relationships between physical parameters that are relevant to answering the discussion questions. The language is accurate and precise. All tables and figures are high quality images, and are properly labeled. Calculations are complete and clear especially the step-by-step propagation of errors/uncertainties if required. All final answers are given in the correct number of significant figures and in the appropriate SI units.

Average (B/B+): The laboratory report is generally clear, focused and displays some development of ideas that is necessary to fully discuss the relevant physics concepts. In general, the language is accurate and precise. While the ideas still need further development, the report is able to clearly communicate the important concepts. In general, tables and figures are properly labeled, but the quality of the images could be further improved. The calculations are generally clear. Final answers are displayed with the appropriate units and with the correct number of significant figures.

Fair (C/C+): The laboratory report is somewhat focused, and the conceptual responses need development. However, the laboratory report still correctly interprets physics concepts relevant to the discussion questions. The language may be somewhat inaccurate, and may occasionally have some grammatical errors but the laboratory report is still able to communicate the essential ideas and concepts. Tables and figures are not consistently labeled completely, and as such, they may not serve to guide the reader into a clearer understanding of the main results. The calculations and final answers are not always given with the appropriate units and correct number of significant figures.

Developing Competence (D): The laboratory report is rambling, unclear, and scientific ideas are underdeveloped. Tables and figures are haphazardly prepared, and therefore, do not clearly convey the results. The report may also lack relevant required calculations, or answers to required discussion questions.

Inadequate (F): Failure to submit the laboratory report results to a grade of F.

F. REQUIRED READINGS

1. Laboratory manual provided by the Department of Physics
2. Hewitt, P.G., 2014. Conceptual Physics, 12th edition, Pearson Education Limited, London, England.
3. Cutnell, J. D., & Johnson, K. W. (2006). *Essentials of Physics*. Hoboken, NJ: John Wiley & Sons, Inc.

G. SUGGESTED READINGS

1. Giancoli, D.C. 2013. Physics: Principles and Applications, 6th edition, Pearson Education, Inc. Saddle River, NJ, USA.
2. Glover, F. and Sugon, Jr. Q. 2017. An Introduction to Physics. C&E Publishing, Quezon City, Philippines.
3. Serway, R.A. and J. W. Jewett. 2013. Physics for Scientists and Engineers, 9th edition, Brooks/Cole, Boston, MA, USA

4. Environmental applications discussed in class are discussed in detail in: David, A. *et al.*, 2005. *Introduction to Environmental Science: Managing Resources for Sustainability*. Edited by E.Q. Espiritu. Office of Research and Publications, Ateneo de Manila University.

H. GRADING SYSTEM

A : 92-100 B+ : 86-91 B : 77-85 C+ : 69-76
C : 60-68 D : 50-59 F : < 50

I. CLASS POLICIES

1. The official learning management system for this course will be Canvas.
2. Only students who are officially enrolled will be included in the Canvas class.
3. Only students who are officially enrolled will be allowed to take assessments.
4. Students who require support for Canvas may seek help by sending an email to ls.one@ateneo.edu or chatting with LS-One through that account using their obf email.
5. Student access to the Canvas course will be closed a week after the electronic release of grades for the second semester. Students are encouraged to download the course materials as well as the records of their grades before the Canvas course closes.
6. Grades reflected on Canvas are not necessarily the official grades for the class.
7. Students with no or very unstable internet connection are advised to immediately inform (by email or through a phone call) (a) their Chair/ Program Director, (b) ls.one@ateneo.edu, and (c) me so that the appropriate assistance can be extended and adjustments can be made. If necessary, portable learning packets which can be in the form of flash drives or printed materials can be sent to the students.
8. It would be nice if students' cameras are kept open during *synchronous* sessions so that I can see who I am talking to and receive non-verbal feedback. But keeping cameras open is not required.
9. The total number of absences in a class must not exceed 20% of the total number of meetings (sum of PHYSICAL class meetings and ONLINE synchronous sessions). Following this rule, the maximum number of allowed absences in this class is *three (3) only*. Absence will be entailed if a student fails to attend the class 30 minutes after the start of the class.
10. Students will receive an automatic grade of **W** (*Withdrawal without Permission*) if their absences exceed *three (3)*.
11. In consideration of the continued volatility of the situation owing to the pandemic, excused absences are not counted towards the maximum number of allowed absences. An absence due to *internet connectivity issues* may be excused, provided that supporting documents (*i.e.* screenshots of "internet connectivity status" with the appropriate date and time stamp) were submitted directly to me for evaluation.
12. A recording of *synchronous* sessions will be uploaded in the class Google Drive at least a day after the *synchronous* session. The class beadle and co-beadle should remind me to record the session and upload the session in the class Google Drive (or if Zoom allows it, for them to (ask me to make them co-hosts so that they can) record the session themselves)
13. Students may communicate with me using the message function in Canvas or using my email address found below. You may send your messages anytime but expect a reply during office hours.
14. Feedback on a submitted output will be given within a week after submission.

15. As a student, regular attendance in all meetings is one of your most important obligations. Furthermore, you need to accomplish modular activities and participate in discussion forums in a specific week and submit the required deliverables at a specific date.
16. No make-up laboratory session. Missed *onsite* experiment due to unexcused absence in the lab class will automatically mean a *zero score* in the corresponding worksheet/report.
17. Worksheets/reports are due a week after the actual experiment and must be submitted to the class beadle at the start of an *onsite* lab session. Any worksheet/report not submitted during the class time will be considered one day late. Policy on late *submission of worksheets/reports: 1 point deduction per day*.
18. For safety reasons, please wear long pants and closed shoes during *onsite* laboratory sessions.
19. Place all bags under the laboratory table.
20. Always bring your scientific calculator. Mobile phones and other gadgets cannot be used as a substitute for calculators.
21. Under no circumstances shall make-up projects or extra work be given to compensate for your grades due to lack of effort exerted during the term.
22. Academic integrity plays a vital role in the learning that takes place in this subject, and submitting work as your own that was generated by artificial intelligence (AI) is plagiarism. Hence, any work written, developed, or created by generative AI does not lend itself to our learning goals and is a breach of ethical engagement and the University's academic integrity policy.
23. Academic dishonesty (cheating, forgery, plagiarism, etc.) is a serious offense in the academic discipline. Based on LS Student Handbook, cheating in any major course requirement (those that constitute 20% or more of the final grade in the course) will merit an academic penalty of F in the course and will be regarded as a major disciplinary offense. On the other hand, cheating in any other course requirement will merit a minimum academic penalty of F in that academic requirement, and will be subjected to the usual review befitting a disciplinary case.
24. Ateneo de Manila University does not discriminate on the basis of sex, gender, marital or parental status, sexual orientation, or gender identity or expression. See the following link for more information on the LS Gender Policy: <http://www.ateneo.edu/ls/ls-gender-policy>.
25. The code of decorum and administrative rules on sexual harassment, other forms of sexual misconduct, and inappropriate behavior is found in this link: <https://www.ateneo.edu/policies/code-decorum-investigation-sexual-harassment>.
26. If there are any current or emergent circumstances that make online learning difficult for you, I would appreciate it if you inform me right away.
27. Students are encouraged to use the chat function at any time during the *synchronous* session (and not just when I ask if there are questions). This gives me a sense of what you are thinking and what your reactions are. In a face-to-face situation, teachers prefer students (to recite but) not to chat in class but in an online environment, chat is preferred. Students are also encouraged to reply to each other's chat messages.

On Safety:

In some experiments, your own safety and that of your fellow students will depend on you. It is expected that common sense will be used in the laboratory and that any dangerous procedures are to be performed only AFTER gaining a full understanding of the experiment. (Students are expected to review all laboratory handouts and procedures prior to the experiment proper.) Your instructor is there to assist you in this regard. Some standard rules are the following:

- No smoking.
- No eating, drinking or chewing of gum within the laboratory.
- Any breakage and/or malfunction of the equipment are to be reported to the instructor as soon as it happens.
- No running around, jumping, pushing and other forms of unnecessary actions.

J. CONSULTATION HOURS

NAME OF FACULTY	EMAIL	DAY/S	TIME
Ramon delos Santos	rdelossantos@ateneo.edu	Thursday Wednesday	10:00 AM– 12:00 PM 1:00 – 3:00 PM *

*Please send email notice at least a day before the requested face-to-face consultation, only when needed.

K. ADDITIONAL NOTES

Class sessions will be:

- **Onsite.** The majority of contact hours will be onsite with online components (synchronous/asynchronous) to supplement face-to-face classes.
- **Synchronous (via Zoom for online activities/experiments only).** The faculty will facilitate the discussions, conduct activities and provide guidance should you have course-related concerns for you to fully acquire the competences in this course. (*An announcement will be sent if a synchronous class is being planned, as stipulated in the class schedule below.*)
- **Asynchronous (self-scheduled and self-paced).** You are tasked to study and work on the online materials, activities, and discussions scheduled at a particular period of time.

Below is an overview of our class schedule:

Lab Experiments	Activity/Deliverables related to CA	Date of Activity Proper
	Orientation (ONSITE)	Jan 18
		Jan 25 (University Employees' Gathering)
	<i>Class Brainstorming (ONSITE)</i>	Feb 1
Activity 1 (ONSITE)		Feb 8
	Topic outline and Sources (ONSITE)	Feb 15
Activity 2 (Online)		Feb 22
Activity 3 (ONSITE)		Feb 29
	<i>Preparation of materials & Progress report (ONSITE)</i>	Mar 7
Activity 4 (Online)		Mar 14
Activity 5 (ONSITE)		Mar 21
		Mar 25-29 (Holy Week)
Activity 6 (ONSITE)		Apr 4
Activity 7 (Online)		Apr 11
	<i>Draft output (Online)</i>	Apr 18
Activity 8 (Online)		Apr 25
	<i>Project presentation (ONSITE)</i>	May 2
	Information drive materials (<i>each submission should have a footnote disclaimer and should not include student names</i>); CA Peer Evaluation	May 8 (Wednesday)

Appendix A: Core Curriculum Learning Outcomes (CCLOs)

LEGEND	
CCLO 1	Demonstrate effective communication skills (listening and speaking, reading and writing) in English and Filipino.
CCLO 2	Evaluate information and issues in various spheres of life using mathematical reasoning and statistical tools to process and manage data.
CCLO 3	Propose ways to address pressing social and ecological problems using appropriate critical approaches and scientific thinking
CCLO 4	Develop a creative and moral imagination that is responsive to contemporary global realities and challenges, but also deeply rooted in local histories, conditions, norms, and institutions.
CCLO 5	Internalize the significance and value of her/ his unique existence and purpose in life in light of Christian faith.
CCLO 6	Discern life choices with a keen awareness of ethical dilemmas and considerations.
CCLO 7	Exemplify a commitment to enhancing human life and dignity, especially those who are excluded and in greatest need.
CCLO 8	Practice a vision of leadership and committed citizenship rooted in Christian humanism.