VISION

Mapúa University, a global leader in education, shall foster sustainable socio-economic growth in society through innovation, digital transformation, and lifelong education.

MISSION

1. The University shall provide a learning environment in order for its students to acquire the attributes that will make them globally competitive.
2. The University shall engage in publishable and/or economically viable research, development, and innovation.
3. The University shall provide state-of-the-art solutions to problems of industries and communities.

COURSE SYLLABUS

1. **Course Code:** PHY101-8

2. **Course Title:** College Physics 1 (Lecture)

3. **Prerequisite:** None

4. **Co-Requisite:** None

5. **Credit:** 3 units

6. **Course Description:** This is a 3-unit course which deals with basic principles of Physics and their applications to the real world. The topics vectors, one and two-dimensional kinematics, Newton's Laws of motion, conservation of energy, impulse and momentum, and rotational motion will be discussed in the course.

7. **Course Outcomes (COs)**

After completing the course, the student must demonstrate the following outcomes:

1. Understand and solve problems on vectors, kinematics, and Newton's laws of motion
2. Understand and solve problems on work, energy, and power; impulse and momentum
3. Understand and solve problems on kinematics and dynamics of rotation, and second condition of equilibrium

8. Course Coverage

Week	Topic	TLA	AT	Tech, Tools, and /or Micro-credentialing Requirements
CO1: Understand and solve problems on vectors, kinematics, and Newton's laws of motion				
1	Orientation Mapua's Mission and Vision, Department's Specific Objectives, Course Policies and Guidelines, Nature and Scope of Course Vectors, Vector Addition, and Subtraction	Lecture/ Discussion/Synthesis		Course Syllabus Reading Assignments Lecture Notes
2	Vectors (continuation) Kinematics (motion along a straight line, free fall, projectile motion)	Lecture/ Discussion/Synthesis		Lecture Notes
3	Kinematics (continuation) Newton's Laws of Motion	Lecture/ Discussion/Synthesis		Lecture Notes
4	Newton's Laws of Motion (continuation) Universal Law of Gravitation	Lecture/ Discussion/Synthesis		Lecture Notes
5	Circular Motion (horizontal circular motion, vertical circular motion) Assessment (coverage: Vectors – Circular Motion)	Lecture/ Discussion/Synthesis	Homework 1 Quiz 1	Problem Sets (Wiley) Assignments Lecture Notes
CO2: Understand and solve problems on work, energy, and power; impulse and momentum.				
6	Work, Energy and Power (Definition of work, energy, and power, law of conservation of energy)	Lecture/ Discussion/Synthesis		Lecture Notes
7	Work, Energy, and Power (continuation)	Lecture/ Discussion/Synthesis		Lecture Notes
8	Impulse and Momentum (Law of conservation of momentum, types of collision)	Lecture/ Discussion/Synthesis		Lecture Notes
9	Impulse and Momentum (continuation)	Lecture/ Discussion/Synthesis		Lecture Notes

Week	Topic	TLA	AT	Tech, Tools, and /or Micro-credentialing Requirements
10	Impulse and Momentum (continuation) Assessment (coverage: Work – Impulse and Momentum) Completion of Coursera	Lecture/ Discussion/Synthesis	Homework 2 Quiz 2 Coursera	Problem Sets (Wiley) Assignments Lecture Notes Coursera
CO3: Understand and solve problems on kinematics and dynamics of rotation, second condition of equilibrium				
11	Rotation of Rigid Bodies (Kinematics of rotation, dynamics of rotation)	Lecture/ Discussion/Synthesis		Lecture Notes
12	Rotation of Rigid Bodies (continuation) Second Condition of Equilibrium	Lecture/ Discussion/Synthesis		Lecture Notes
13	Second Condition of Equilibrium (continuation) Assessment (coverage: Rotation of Rigid Bodies-Second Condition of Equilibrium)	Lecture/ Discussion/Synthesis	Homework 3 Quiz 3	Problem Sets (Wiley) Assignments Lecture Notes
14	Summative Assessment			

9. Lifelong Learning Opportunities

Students will be asked to relate the fundamental physics concepts taught in their respective research topics as well as learn to use computer software to simulate various physical concepts and properly interpret them.

10. Contribution of the Course to Meeting the Professional Component

Computer Science topics – 30%
General education component – 70 %

11. Prescribed E-book and/or Courseware

A. METIS (Mapua E-Text Infinity Solution)

- Halliday, Resnick, J. Walker. Principles of Physics, 11th Edition (International Student Version) ©2020, John Wiley & Sons, Inc.

B. Others

- Young, H. D. and Freedman, R. A. University Physics 12th Edition ©2009 Addison Wesley Publishing Co., Inc.
- Serway, Raymond A. and Jewett, John W. Physics for Scientists and Engineers 9th Edition ©2017 Brooks/Cole

12. Other References and Educational Resources

- **METIS (Mapua E-Text Infinity Solution)**
- Cutnell, J. D., Johnson, K. W., Young D., Stadler, S. Physics 10th Edition © 2014 Wiley

- **COURSERA**
  PHYSICS101: Forces and Kinematics (Rice University)

13. Course Evaluation

Student performance will be rated based on the following:

Assessment Tasks		Weight	Minimum Average for Satisfactory Performance
CO1	Quiz 1	16.25 %	60%
	HW 1	2.50 %	
CO2	Quiz 2	16.25 %	60%
	HW 2	2.50 %	
CO3	Quiz 3	16.25 %	60%
	HW 3	2.50 %	
	Coursera	16.25 %	
Portfolio		2.50 %	60%
Summative Assessment: Final Examination		25%	60%
TOTAL		100%	60%

The final grades will correspond to the weighted average scores shown below

Low	High	Grade	Low	High	Grade
0.00%	59.99%	5.00	76.00%	80.99%	2.00
60.00%	63.99%	3.00	81.00%	85.99%	1.75
64.00%	67.99%	2.75	86.00%	90.99%	1.50
68.00%	71.99%	2.50	91.00%	95.99%	1.25
72.00%	75.99%	2.25	96.00%	100.00%	1.00

14. Policy on the Use of AI Tools and Technologies

15. Other Course Policies

a. Attendance (for Blended Lecture)
According to CHED policy, total number of absences by the students should not be more than 20% of the total number of meetings or 9 hours for a three-unit course. Students incurring more than 9 hours of unexcused absences automatically gets a failing grade regardless of class standing

b. Guided Learning Output
Guided learning outputs through various problem sets in each cluster of topics are assigned to the students. Problems encountered in the problem sets will be discussed in class.

c. Written Examination
All examinations are written.

d. Course Portfolio
Selected guided learning outputs and examinations are to be compiled and collected before the end of the term. The selection is based on statistical data gathering (lowest, median, highest). Guided learning outputs and examinations with marks lowest, median, and highest must be copied and must be given back to the instructor for course portfolio keeping.

e. Language of Instruction
Lectures, discussion, and documentation will be in English. Written and spoken work may receive a lower mark if it is, in the opinion of the instructor, deficient in English.

f. Dress and Grooming Codes
All of us have been instructed on the Dress and Grooming Codes of the University.

g. Academic Integrity Policy

It is the student's responsibility to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Any of the following sanctions may be imposed to any student who is found guilty of committing online academic dishonesty:
a. Failed mark in the course.
b. Suspension for a period of less than one term, with or without community service.
c. Suspension for a period of one term or more, with or without community service.
d. Non-readmission to the University.
e. Dismissal from the University.
f. Expulsion.

The following are considered academic dishonesty:

1. Using another MyMapua email address to login to any platform (such as BlackBoard and Coursera) with or without permission.

2. Asking or hiring someone else to do their exams, homework, Coursera course, papers, projects or other academic requirements.
3. Recording and saving copies of exam questions or answers, or answer keys for distribution.
4. Receiving copies of exam questions or answers, or answer keys to an exam from someone who has already taken it.
5. Plagiarizing or the unethical act of stealing the thoughts of another without proper citation or reference, acquiring information from the Internet without acknowledging the author, copying from another student's work without permission and submitting it as own work.
6. Massive, pre-meditated, organized online cheating using instant messaging/email during a quiz or exam.
7. Any form of dishonesty in peer-reviewed assignments/submissions (e.g. Coursera peer-graded submissions).
8. Engaging in any activities that will dishonestly improve results, or dishonestly improve or damage the results of others.
9. Any other form of dishonesty or cheating in any assessment or course requirement.

All students who will violate the Academic Integrity Policy of the university will be given zero mark for the exam or for the activity and will be given a failing grade for the course. He or she will also be referred to the Prefect of Discipline for appropriate sanction.

h. The grade of "5.00" is given to:
- A student whose performance is poor.
- A student who has stopped attending classes at any time without officially withdrawing his courses through the Office of the Registrar.
- A student who has accumulated a number of absences equivalent to 20% of the prescribed number of school days in one (1) quarter. After this number of absences has been recorded, a module grade of 5.00 is given to all remaining modules regardless of class standing.
- A student who has not accomplished or submitted more than 50% of the course assessments and requirements in a module.
- A student who violated the Academic Integrity policies of the university.
  The grade of "5.00" for a course within the program of study shall disqualify a student from academic scholarship and academic honors

i. Consultation Schedule
Consultation schedules with the Professor are posted inside the Physics Department faculty room and in the School's web-page (http://physics.mapua.edu.ph). It is recommended that the student first set an appointment to confirm the instructor's availability.

j. Appeal system
All appeals on student assessment must be made by the concerned student within one week after the return of the assessed student work.

In case the student is not satisfied, no later than one week after the decision of the faculty has been made, he can elevate the appeal to the program chair or dean in case there is no program chair. The decision of the program chair or dean is final. The faculty must abide with the moderated decision of the program chair or dean.

16. Course Materials to be Provided to Students

16.1 Syllabus
16.2 Lecture Notes
16.3 Slideshow Presentations
16.4 Video Lectures
16.5 Solved Problems
16.6 Mapúa E-Text INFINITY Solution (METIS) and textbooks
16.7 Course Schedule (see Annex A)

17. Committee Members

Vladimir P. Villegas
Angelo Marco A. Ramoso

ANNEX A: COURSE SCHEDULE

COURSE CODE (COURSE SCHEDULE)

WK	DAY/DATE		TOPIC/S	TLA	AT	MODE
COURSE OUTCOME 1:						
1	Day 1	Mon	Orientation Mapua's Mission and Vision, Department's Specific Objectives, Course Policies and Guidelines, Nature and Scope of Course	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Vectors	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Vectors (cont.)	Lecture/ Discussion/Synthesis		Online
2	Day 1	Mon	Vectors (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Kinematics	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Kinematics (cont.)	Lecture/ Discussion/Synthesis		Online
3	Day 1	Mon	Kinematics (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Newton's Laws of Motion	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Newton's Laws of Motion (cont.)	Lecture/ Discussion/Synthesis		Online
4	Day 1	Mon	Newton's Laws of Motion (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Universal Law of Gravitation	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Circular Motion	Lecture/ Discussion/Synthesis		Online
5	Day 1	Mon	Circular Motion (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Assessment (coverage: Kinematics – Circular Motion)		Homework 1 Quiz 1	F2F
	Day 3	Fri	Work, Energy, and Power (Introduction)	Lecture/ Discussion/Synthesis		Online
COURSE OUTCOME 2:						
6	Day 1	Mon	Work, Energy, and Power (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Work, Energy and Power (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Work, Energy, and Power (cont.)	Lecture/ Discussion/Synthesis		Online
7	Day 1	Mon	Work, Energy, and Power (cont.)	Lecture/ Discussion/Synthesis		F2F

WK	DAY/DATE		TOPIC/S	TLA	AT	MODE
	Day 2	Wed	Work, Energy and Power (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Work, Energy, and Power (cont.)	Lecture/ Discussion/Synthesis		Online
8	Day 1	Mon	Impulse and Momentum	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Impulse and Momentum (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Impulse and Momentum (cont.)	Lecture/ Discussion/Synthesis		Online
9	Day 1	Mon	Impulse and Momentum	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Impulse and Momentum (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Impulse and Momentum (cont.)	Lecture/ Discussion/Synthesis		Online
10	Day 1	Mon	Impulse and Momentum (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Assessment (coverage: Work, Energy, and Power – Impulse and Momentum)		Homework 2 Quiz 2	F2F
	Day 3	Fri	Coursera Courses		Coursera	Online
COURSE OUTCOME 3:						
11	Day 1	Mon	Rotation of Rigid Bodies	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Rotation of Rigid Bodies (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Rotation of Rigid Bodies (cont.)	Lecture/ Discussion/Synthesis		Online
12	Day 1	Mon	Rotation of Rigid Bodies (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Second Condition of Equilibrium	Lecture/ Discussion/Synthesis		F2F
	Day 3	Fri	Second Condition of Equilibrium (cont.)	Lecture/ Discussion/Synthesis		Online
13	Day 1	Mon	Second Condition of Equilibrium (cont.)	Lecture/ Discussion/Synthesis		F2F
	Day 2	Wed	Assessment (coverage: Rotation of Rigid Bodies – Second Condition of Equilibrium)		Homework 3 Quiz 3	F2F
	Day 3	Fri	Completion Day		Make-Up Exams Problem Sets Coursera	F2F/Online
14			Summative Assessment		Final Exam	F2F