COURSE OUTLINE : PHY 110
D Credit – Degree Applicable
COURSE ID 004043
Cyclical Review: October 2020

COURSE DISCIPLINE : PHY

COURSE NUMBER : 110

COURSE TITLE (FULL) : Introduction To Physics

COURSE TITLE (SHORT) : Introduction To Physics

CATALOG DESCRIPTION

PHY 110 provides an overview of important phenomena in physics using classroom demonstrations and lectures in mechanics, heat, sound, light, electricity and magnetism, and modern physics.

CATALOG NOTES

Note: This course may not be taken for credit by students who have completed PHY 101 or 105.

Total Lecture Units:3.00

Total Laboratory Units: 0.00

Total Course Units: 3.00

Total Lecture Hours:54.00

Total Laboratory Hours: 0.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 54.00

Total Out-of-Class Hours: 108.00

Prerequisite: None.

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1				N/A	No

EXIT STANDARDS

1 Identify the historic development of the laws of physics;
2 Solve problems using the basic laws of physics;
3 Recognize the laws of physics that influence everyday phenomena.
4 Assess information to determine whether it was obtained scientifically

STUDENT LEARNING OUTCOMES

1 utilize the internet to find information about scientific issues and assess the validity of the information
2 identify the basic premises of Newtonian mechanics, optics, and electricity, magnetism, and thermal physics
3 identify and analyze the complex relationship between topics in modern physics, the production and use of energy and its effect on the climate

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Force and Motion • Inertia, Mass, and Weight • Newton's Laws of Mothion • Linear and Accelerated Motions • Forces: Tension, Normal Forces, and Friction • Momentum and Momentum Conservation	6	0	6
2	Energy • Kinetic and Potential Energy • Conservation of Energy • Work and Power	6	0	6
3	Circular Motion and Gravitation • Centripetal Force • Gravity and the Gravitational Field • Kepler's Laws of Planetary Motion	6	0	6
4	Vibrations and Waves • Oscillations • Properties of Waves • Sound	6	0	6

5	Heat • Temperature and Expansion • Change of Phase • The Ideal Gas Law • Thermodynamics	6	0	6
6	Electricity and Magnetism • Charge and Electrostatics • Electric Fields and Potential • Currents and Circuits • Electric Power and Energy • Magnetism and Magnetic Fields • Electromagnetic Induction	6	0	6
7	Light • Electromagnetic Spectrum • Reflection and Refraction • Optical Devices • Interference and Diffraction	6	0	6
8	Modern Physics • Atoms and Atomic Spectra • Photoelectric Effect • Radioactivity	6	0	6
9	Physics of Climate Change • Energy Production • The Greenhouse Effect • Anthropogenic Global Climate Change • The IPCC Assessment	6	0	6
				54

OUT OF CLASS ASSIGNMENTS

1 Reading assignments from textbook and other online resources
2 Watching online video lectures and demonstrations
3 Online reading quizzes
4 Qualitative and quantitative problem-solving assignments

METHODS OF EVALUATION

1 Problems solved and recorded in a notebook to be turned in to instructor
2 Two or more one-hour examinations
3 Short, in-class quizzes
4 Final examination with qualitative short-answer and/or essay questions

METHODS OF INSTRUCTION

- [x] Lecture
- [x] Laboratory
- [ ] Studio
- [ ] Discussion
- [ ] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [x] Collaboratory Learning
- [x] Demonstration
- [ ] Field Activities (Trips)
- [ ] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Conceptual Physics, current edition	Required	Pearson		Print	Paul G. Hewitt	0321548094	2015