Course ILOs for Approved Common Core Courses (Subject Code: **PHYS**)

Course Code, Title and Course ILOs		Weighting	Area(s)
PHYS 1001	**Physics and the Modern Society**		S&T
CILO 1	To recognize philosophical foundation of science and its interconnection with technology and society	NA	
CILO 2	To comprehend concepts and knowledge of scientific theories in physics	NA	
CILO 3	To apply the theories to solve problems quantitatively	NA	
CILO 4	To explain phenomena in the physical world in scientific language	NA	
PHYS 1002	**Introduction to Astrophysics and Astronomy**		S&T
CILO 1	Summarize basic sky phenomena, including seasons and phases of the Moon	NA	
CILO 2	Apply basic physical laws such as the Kepler's laws to calculate motions of planets	NA	
CILO 3	Describe and explain the general properties of stars, how we measure these properties (e.g. stellar mass and size, surface temperature)	NA	
CILO 4	Summarize stellar evolution and the birth-to-death lives of both low- and high-mass stars	NA	
CILO 5	Summarize the end points of stellar evolution: white dwarfs, neutron stars, and black holes, and the physical properties (e.g. mass, size, luminosity)	NA	
CILO 6	Describe how we determine key parameters such as galactic distances and age, and galaxy evolution	NA	
CILO 7	Summarize the evidences for dark matter and dark energy	NA	
CILO 8	Understand the implications of the Hubble law and the inference on our views of the universe	NA	
PHYS 1003	**Energy and Related Environmental Issues**		S&T
CILO 1	Explain our good life contributed by using large number of fossil fuel consuming engines/ machines	NA	
CILO 2	Identify the fossil fuels and other renewable energy resources currently used and the issues arising from the use of these energy resources	NA	
CILO 3	Explain the thermodynamic constraint of energy conversion, especially in the case of engine efficiency; name the engines used in land, sea, air transport as well as in the generation of electricity	NA	
CILO 4	Explain how electricity is generated and the use of electric light and motors in daily life	NA	
CILO 5	Recognize air pollution and greenhouse gases caused by burning fossil fuels	NA	
CILO 6	Analyze the energy use and pollution in Hong Kong and the PDR	NA	

Course ILOs for Approved Common Core Courses (Subject Code: **PHYS**)

Course Code, Title and Course ILOs		Weighting	Area(s)
PHYS 1005	**Physics in Movies**		S&T
CILO 1	Use the following principles and basic mathematics (exclude calculus) to do simple quantitative calculations and order-of-magnitude estimation - Laws of motion - Conservation laws - Laws of thermodynamics - Basic notions of modern physics including relativity and quantum physics - Light and waves	NA	
CILO 2	Judge critically whether the action sequences shown in the movies comply with physical laws	NA	
CILO 3	Think critically and have an informed opinion (based on physical principles) to evaluate the ethical, social and philosophical implications of scientific discoveries and technological development, such as nuclear power and nanotechnology	NA	
PHYS 1006	**Astronomy for Beginners**		S&T
CILO 1	Summarize basic sky phenomena, including seasons and phases of the Moon	NA	
CILO 2	Describe and explain the general properties of stars, how we measure these properties	NA	
CILO 3	Summarize stellar evolution and the birth-to-death lives of both low-and high-mass stars	NA	
CILO 4	Summarize the end points of stellar evolution: white dwarfs, neutron stars, and black holes	NA	
CILO 5	Describe how we determine key parameters such as galactic distances and age, and galaxy	NA	
CILO 6	Summarize the evidences for dark matter and dark energy	NA	
CILO 7	Describe what the Hubble law is	NA	
CILO 8	Apply basic physical laws to describe motions of planets	NA	
PHYS 1007	**Quantum Information for Everyone**		S&T
CILO 1	Explain the basic concepts of quantum information science	30%	
CILO 2	Apply the basic concepts to information processing tasks	40%	
CILO 3	Explain the current stage of global research and development for quantum software and hardware	20%	
CILO 4	Exercise effective communication of quantum information science concepts to interdisciplinary audiences	10%	

Course ILOs for Approved Common Core Courses (Subject Code: **PHYS**)

Course Code, Title and Course ILOs		Weighting	Area(s)
PHYS 1111	**General Physics I**		S&T
CILO 1	Use Newton's laws of motion to solve simple dynamics problems	NA	
CILO 2	Use the principles of conservation of energy and momentum to solve simple dynamics problems and problems with rotational motion, and explain common physical phenomena	NA	
CILO 3	Explain physical phenomena unique to waves (such as their superposition, interference, formation of standing waves, resonance, beats, Doppler effects, and the creation of shock waves)	NA	
CILO 4	Use the kinetic theory to explain the properties of gases	NA	
CILO 5	Use the first and second laws of thermodynamics to solve problems involving ideal gases	NA	
CILO 6	Use scientific language to explain phenomena in the physical world	NA	
CILO 7	Recognize philosophical foundation of physics and its interconnection with technology and society	NA	
PHYS 1112	**General Physics I with Calculus**		S&T
CILO 1	Use Newton's laws of motion to solve simple dynamics problems	20%	
CILO 2	Use the principles of conservation of energy and momentum to solve simple dynamics problems and problems with rotational motion, and explain common physical phenomena	20%	
CILO 3	Explain physical phenomena unique to waves (such as their superposition, interference, formation of standing waves, resonance, beats, Doppler effects, and the creation of shock waves)	10%	
CILO 4	Use the kinetic theory to explain the properties of gases	10%	
CILO 5	Use the first and second laws of thermodynamics to solve problems involving ideal gases	10%	
CILO 6	Use scientific language to explain phenomena in the physical world	10%	
CILO 7	Use calculus to analyze and solve physical problems	20%	
PHYS 1312	**Honors General Physics I**		S&T
CILO 1	Use Newton's laws of motion to solve dynamics problems	20%	
CILO 2	Use the principles of conservation of energy and momentum to solve dynamics problems and problems with rotational motion, and explain common physical phenomena	20%	
CILO 3	Explain physical phenomena unique to waves such as their superposition, interference, formulation of standing waves, resonance, beats, Doppler effects, and the creation of shock waves	10%	
CILO 4	Use kinetic theory to explain the properties of gases	10%	
CILO 5	Use the first and second laws of thermodynamics to solve problems involving ideal gases	10%	
CILO 6	Use scientific language to explain phenomena in the physical world	10%	
CILO 7	Use calculus to analyze and solve physical problems	20%	

NA : The course offering unit has not assigned any weighting for the course ILOs.

Updated as at 17 September 2020