9/15/2022	DATE	MSD	DIVISION
☐	REQUIRED COURSE	☐	NEW COURSE
☐	ELECTIVE COURSE	☑	REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	PHY-110		TITLE: *(30 Characters Max)*		Concepts of Physics						
SEM CR HRS:	4	Lecture:	3		Lab:	2				ECH:	5
Course Level:	☑ Gen Ed / IAI ☐ Baccalaureate /Non-IAI		☐ Career/Technical ☐ Dev Ed/ Not in Degree Audit		Clinical Practicum:	0		SOE/ Internship:	0	SOE ECH:	0
COURSE PCS #	11 - 10.0801		IAI Code		P1 900L		Contact Hours (Minutes Per Week)				
Repeatable (Y/N):	N	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:		Max:		16 Wks 250	8 wks 500
Prerequisites:	None										
Catalog Description: (40 Word Limit)	Phenomena-oriented course, emphasizing a general understanding of the rules of physics and its connections with culture and society.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Non-Clinical Internship/ SOE
Measurement	2	4		
Philosophy of Science	2	2		
Astronomy	4	2		
Motion and Forces	8	4		
Energy	8	6		
Light and Electromagnetism	8	8		
Relativity/Cosmology	6	2		
The Quantum Idea	7	2		
TOTAL	45	30	0	0

EVALUATION

QUIZZES ☑	EXAMS ☑	ORAL PRES ☐	PAPERS ☐
LAB WORK ☑	PROJECTS ☐	COMP FINAL ☑	OTHER ☑ homework

COURSE MATERIALS

TITLE:	Physics—Concepts & Connections	
AUTHOR:	Art Hobson	
PUBLISHER:	Prentice Hall	
VOLUME/EDITION/URL:	5th	
COPYRIGHT DATE:	2010	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		Through various problematic situations involving tests, lab reports, quizzes, and homework problems the student will be able to:
Measurement	6	Apply the metric system to measurements. Demonstrate the scales of science.
Philosophy of Science	4	Compare and contrast the philosophy of science with other truth claims such as religion and new age.
Astronomy	6	Demonstrate the methods of science by studying early astronomy.
Motion and Forces	12	Compute quantities concerning velocity, acceleration, and free fall. Determine kinematic properties from graphs. Apply Newton’s Laws to various situations. Demonstrate pseudo forces arising from non-inertial reference frames.

Energy	14	Demonstrate and apply the concepts of work, kinetic, and potential energy. Demonstrate and apply heat concepts, including heat engines.
Light and Electromagnetism	16	Apply basic knowledge of voltage, currents and resistance to simple circuits. Demonstrate climate change in terms of radiative heat processes.
Relativity/Cosmology	8	Demonstrate how the rules of physics change when velocities approach the speed of light. Apply the principle of relativity to cosmology.
The Quantum Idea	9	Demonstrate how the rules of physics operate in the microworld.
	75	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:
	• Compare and contrast the Copernican Principle and the Anthropic Factor.
	• Demonstrate the concepts of mass, weight, and net force.
	• Demonstrate the universality of the rules of physics (i.e. applies to the 'heavens' and the Earth)
	• Demonstrate that science is both a methodology and a philosophy and to Demonstrate the scope of scientific Demonstrateing.
	• Demonstrate that energy transforms and that the least useful kind of energy is thermal energy.
	• Demonstrate how physics has helped shape society and will help to make policy decisions in the future.
	• Know the basic features of the electromagnetic spectrum.
	• Know that the rules of physics change for the very small and the very fast, and that the basic properties of the world are not commonsensical.

** Course Outcomes will be used in the Assessment Software for Outcomes Assessment. Limit to 3 - 5.*