

North Central Michigan College

NCMC MASTER COURSE SYLLABUS

Last Date Revised 3/5/2012

INSTRUCTIONAL AREA: Liberal Arts

DEPARTMENT: Science

ASSOCIATE DEAN: Samantha McLin

ORIGINATOR: Kurt Yuengling

DEAN OF INSTRUCTION: Christine Hammond, Ph.D.

COURSE ALPHA/NUMBER: PHY 230

COURSE TITLE: Physics for Scientists and Engineers I

HOURS OF INSTRUCTION:

Credit hours: 5

Lecture: 4

Lab: 3

Clinical:

Variable Hours:

Total Hours of Instruction: 7

Total Contact Hours: 123.20

(Total Contact Hours Formula: (lecture hours + lab hours + clinical hours) x 17.6

CATALOG DESCRIPTION: The first semester of a one-year introduction, intended for students who require a trigonometry-based approach to physics. Topics include the principles and practical applications of mechanics (kinematics, dynamics, momentum, energy, simple harmonic motion), fluids, and thermal physics. The course includes laboratory work

PREREQUISITE(S): MATH 150 or higher

COREQUISITE(S):

GENERAL EDUCATION DISTRIBUTION AREA:

Communications, Writing

Natural Science Group A

Communications, Communications

Natural Science Group B

Humanities Group A

Social Science Group A

Humanities Group B

Social Science Group B

Mathematics

Non Applicable

Science

GENERAL EDUCATION OUTCOMES:

Write and Speak Effectively

Think Critically & Analytically

Write & Speak Effectively and Think Critically & Analytically

Non Applicable

COURSE OBJECTIVES AND OUTCOMES:

Upon successfully completing this course, you should be able to: (1) recognize the basic concepts and principles of mechanics and thermal physics in your own experiences with the physical universe, (2) apply the equations, relationships and laws of mechanics and thermal physics to determine quantitative answers to problems, (3) apply critical thinking and problem-solving skills to the analysis and comprehension of the physical universe, (4) effectively use selected laboratory instruments and techniques to collect, analyze, and interpret physical data, and (5) apply calculus and vector mathematics to problems and theories in physics

METHODS OF INSTRUCTION: Lecture, lab, discussion

METHODS OF EVALUATION: Homework assignments, Quizzes, Lab reports, Exams

REQUIRED TEXT AT TIME OF COURSE ADOPTION/REVISION:

TEXTS: Physics for Scientists and Engineers with Modern Physics, 6th ed., Serway and Jewett

OPTIONAL SUPPLEMENTARY MATERIALS:

Reasonable accommodations can be provided for students with documented disabilities. Please contact Learning Support Services for assistance: (231)348-6817.

SUGGESTED TIME ALLOWANCE AND SEQUENCE OF INSTRUCTION:

(List general content description of what is being covered each week)

(If you need more than one line for a week, hit enter at the end of row; second line will begin)

WEEK 1	Units, Dimensions, and Vectors
WEEK 2	Motion
WEEK 3	Kinematics in One Dimension
WEEK 4	Kinematics in Two Dimensions
WEEK 5	Forces and Newton's Laws of Motion
WEEK 6	Work and Energy
WEEK 7	Potential and Kinetic Energy
WEEK 8	Impulse and Momentum
WEEK 9	Uniform Circular Motion
WEEK 10	Rotational Kinematics
WEEK 11	Rotational Dynamics
WEEK 12	Simple Harmonic Motion
WEEK 13	Fluids
WEEK 14	Temperature and Heat Transfer
WEEK 15	Ideal Gases
WEEK 16	Thermodynamics

APPROVED FOR ADOPTION/REVISION BY THE CRD/AP COMMITTEE ON 03/21/12