

Washtenaw Community College Comprehensive Report

PHY 100 Physics for Elementary Teachers Effective Term: Spring/Summer 2024

Course Cover

College: Math, Science and Engineering Tech

Division: Math, Science and Engineering Tech

Department: Physical Sciences

Discipline: Physics

Course Number: 100

Org Number: 12340

Full Course Title: Physics for Elementary Teachers

Transcript Title: Physics for Elementary Teacher

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Course Change

Change Information:

Consultation with all departments affected by this course is required.

Objectives/Evaluation

Rationale: Updating course objectives to meet the State of Michigan standards for the preparation of teachers.

Proposed Start Semester: Spring/Summer 2024

Course Description: In this course, students will examine the basic laws that govern the physical universe. Students will explain everyday physical phenomena in elementary terms - an essential skill for prospective educators. Students will develop and execute lessons plans (instruction, materials, and hands-on activities) to help students construct a picture of the physical universe.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 60 **Student:** 60

Lab: Instructor: 30 **Student:** 30

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 90 **Student:** 90

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

MACRAO

MACRAO Science & Math

MACRAO Sci & Math Elementary Education

MACRAO Lab Science Course

General Education Area 4 - Natural Science

Assoc in Applied Sci - Area 4

Assoc in Arts - Area 4

for Elementary and Early Childhood

Michigan Transfer Agreement - MTA

MTA Lab Science

Request Course Transfer**Proposed For:**

Eastern Michigan University

Michigan State University

University of Michigan

Wayne State University

Student Learning Outcomes

1. Recognize the major components of mechanics, heat, sound, electricity, and magnetism.

Assessment 1

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2024

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 75% of students will score 73% or higher.

Who will score and analyze the data: Departmental faculty

2. Develop and teach a lesson plan for elementary age children based implementing principles and concepts of physics.

Assessment 1

Assessment Tool: Lesson plan

Assessment Date: Fall 2024

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will score 73% or higher.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Interpret the components of mechanics: motion, energy, rotational motion, states of matter and fluid motion. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)
2. Identify the components of heat: temperature scales and heat transfer. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)
3. Summarize the components of waves: types and sound propagation. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)
4. Classify the components of electricity: static charge and basic circuitry. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)
5. Explain transformers and sources of magnetism. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)

6. Interpret principles of physics appropriate for elementary age children. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)
7. Develop teaching of physics strategies for elementary students. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)
8. Demonstrate age-appropriate teaching lesson plans. (Addresses the MI standards for the Preparation of Teachers of PK-6 Education, P.1.C, P.1.I, S.1, S.2, S.3, S.4, S.5, & S.6.)

New Resources for Course

Course Textbooks/Resources

Textbooks

Paul Hewitt. *Conceptual Physics*, 13th ed. San Francisco: Addison-Wesley, 2021, ISBN: 9780135746264.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Robert Hagood</i>	<i>Faculty Preparer</i>	<i>Aug 28, 2023</i>
Department Chair/Area Director: <i>Suzanne Albach</i>	<i>Recommend Approval</i>	<i>Sep 20, 2023</i>
Dean: <i>Tracy Schwab</i>	<i>Recommend Approval</i>	<i>Sep 21, 2023</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Feb 23, 2024</i>
Assessment Committee Chair: <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Feb 26, 2024</i>
Vice President for Instruction: <i>Brandon Tucker</i>	<i>Approve</i>	<i>Mar 13, 2024</i>

Washtenaw Community College Comprehensive Report

PHY 100 Physics for Elementary Teachers Effective Term: Fall 2023

Course Cover

College: Math, Science and Engineering Tech

Division: Math, Science and Engineering Tech

Department: Physical Sciences

Discipline: Physics

Course Number: 100

Org Number: 12340

Full Course Title: Physics for Elementary Teachers

Transcript Title: Physics for Elementary Teacher

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Outcomes/Assessment

Objectives/Evaluation

Rationale: Three-year review of syllabus and updated based on the course assessment.

Proposed Start Semester: Fall 2023

Course Description: In this course, students will examine the basic laws that govern the physical universe. Students will explain everyday physical phenomena in elementary terms - an essential skill for prospective educators. Students will develop and execute lessons plans (instruction, materials, and hands-on activities) to help students construct a picture of the physical universe.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 60 **Student:** 60

Lab: Instructor: 30 **Student:** 30

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 90 **Student:** 90

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

MACRAO

MACRAO Science & Math
MACRAO Sci & Math Elementary Education
MACRAO Lab Science Course
General Education Area 4 - Natural Science
Assoc in Applied Sci - Area 4
Assoc in Science - Area 4
Assoc in Arts - Area 4
for Elementary and Early Childhood
Michigan Transfer Agreement - MTA
MTA Lab Science

Request Course Transfer

Proposed For:

Eastern Michigan University
Michigan State University
University of Michigan
Wayne State University

Student Learning Outcomes

1. Recognize the major components of mechanics, heat, sound, electricity, and magnetism.

Assessment 1

Assessment Tool: Outcome-related exam questions
Assessment Date: Fall 2023
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Answer key
Standard of success to be used for this assessment: 75% of students will score 73% or higher.
Who will score and analyze the data: Departmental faculty

2. Develop and teach a lesson plan for elementary age children based implementing principles and concepts of physics.

Assessment 1

Assessment Tool: Lesson plan
Assessment Date: Fall 2023
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Departmentally-developed rubric
Standard of success to be used for this assessment: 75% of students will score 73% or higher.
Who will score and analyze the data: Departmental faculty

Course Objectives

1. Interpret the components of mechanics: motion, energy, rotational motion, states of matter and fluid motion.
2. Identify the components of heat: temperature scales and heat transfer.
3. Summarize the components of waves: types and sound propagation.
4. Classify the components of electricity: static charge and basic circuitry.
5. Explain transformers and sources of magnetism.
6. Interpret principles of physics appropriate for elementary age children.
7. Develop teaching of physics strategies for elementary students.
8. Demonstrate age-appropriate teaching lesson plans.

New Resources for Course

Course Textbooks/Resources

Textbooks

Paul Hewitt. *Conceptual Physics*, 13th ed. San Francisco: Addison-Wesley, 2021, ISBN: 9780135746264.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Robert Hagood</i>	<i>Faculty Preparer</i>	<i>Nov 02, 2022</i>
Department Chair/Area Director: <i>Suzanne Albach</i>	<i>Recommend Approval</i>	<i>Nov 18, 2022</i>
Dean: <i>Tracy Schwab</i>	<i>Recommend Approval</i>	<i>Nov 21, 2022</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Mar 16, 2023</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Mar 20, 2023</i>
Vice President for Instruction: <i>Victor Vega</i>	<i>Approve</i>	<i>Mar 29, 2023</i>

Washtenaw Community College Comprehensive Report

PHY 100 Physics for Elementary Teachers Effective Term: Winter 2019

Course Cover

Division: Math, Science and Engineering Tech

Department: Physical Sciences

Discipline: Physics

Course Number: 100

Org Number: 12340

Full Course Title: Physics for Elementary Teachers

Transcript Title: Physics for Elementary Teacher

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Consultation with all departments affected by this course is required.

Outcomes/Assessment

Rationale: After completion of Course Assessment, master syllabus will be updated

Proposed Start Semester: Fall 2018

Course Description: In this course, students study the basic laws governing the physical universe. This course helps prospective educators learn to explain everyday physical phenomena in elementary terms. Prospective educators will also learn to select materials and provide instruction for hands-on activities that help students construct a picture of our physical universe.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 60 Student: 60

Lab: Instructor: 30 Student: 30

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 90 Student: 90

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

MACRAO

MACRAO Science & Math

MACRAO Sci & Math Elementary Education

MACRAO Lab Science Course

General Education Area 4 - Natural Science

Assoc in Applied Sci - Area 4
Assoc in Science - Area 4
Assoc in Arts - Area 4
for Elementary and Early Childhood
Michigan Transfer Agreement - MTA
MTA Lab Science

Request Course Transfer

Proposed For:

Eastern Michigan University
Michigan State University
University of Michigan
Wayne State University

Student Learning Outcomes

1. Identify major components of mechanics, heat, sound, electricity and magnetism.

Assessment 1

Assessment Tool: Department exam
Assessment Date: Fall 2018
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Answer key
Standard of success to be used for this assessment: 80% of students will score 70% or higher
Who will score and analyze the data: Departmental faculty

2. Develop and teach a lesson plan for elementary age children based on one of the principles of physics.

Assessment 1

Assessment Tool: Lesson plan
Assessment Date: Fall 2018
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Departmentally-developed rubric
Standard of success to be used for this assessment: 70% of students will score 70% or higher
Who will score and analyze the data: Departmental faculty

Course Objectives

1. Identify the components of mechanics: motion, energy, rotational motion, states of matter and fluid motion.
2. Identify the components of heat: temperature scales and heat transfer.
3. Identify the components of waves: types and sound propagation.
4. Identify the components of electricity: static charge and basic circuitry.
5. Identify transformers and sources of magnetism.
6. Identify principles of physics appropriate for elementary age children.
7. Develop teaching of physics strategies for elementary students.
8. Demonstrate age-appropriate teaching lesson plans.

New Resources for Course

Course Textbooks/Resources

Textbooks

Paul Hewitt. *Conceptual Physics*, 10th ed. San Fransico: Addison-Wesley, 2006, ISBN: 9780805391909.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Robert Hagood</i>	<i>Faculty Preparer</i>	<i>Apr 25, 2018</i>
Department Chair/Area Director: <i>Kathleen Butcher</i>	<i>Recommend Approval</i>	<i>May 24, 2018</i>
Dean: <i>Kristin Good</i>	<i>Recommend Approval</i>	<i>May 26, 2018</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Oct 29, 2018</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Oct 30, 2018</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Nov 02, 2018</i>