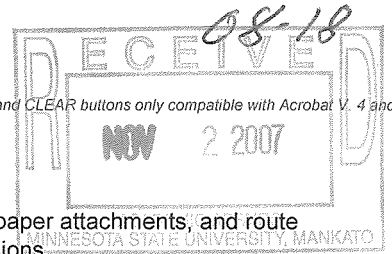




Minnesota State University, Mankato HOLD and CLEAR buttons only compatible with Acrobat V. 4 and 5
Curriculum Proposal



Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU's curricular process for recommendations and decisions.

		(Check all that apply):		Proposal #	60
College:	Science, Engineering and Technology	<input checked="" type="checkbox"/>	Undergraduate	Effective Date of Change:	
Department:	Physics and Astronomy	<input type="checkbox"/>	Graduate	Academic Year	07-08
Program:	Physics B.S.	CIP # _____		(For Office Use Only)	
Type of Change	COURSE PROPOSALS			Course Designator	Number of Credits
Proposed:	New Course				
Title Current:					
Title Proposed:	General Physics III			PHYS 223	3
24-Char. Abbrev:	General Physics III			(if applicable)	

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):
 Designed for science and engineering students. Calculus-based physics. Covers fluids, thermodynamics, mechanical and sound waves, geometrical optics, physical optics, and modern physics. Lecture only. (Associated laboratory course is PHYS 233.)
 Pre: MATH 122 with a "C" or better; and PHYS 221 with a "C" or better.
 Spring

Rationale or Justification for change:
 We propose to change the General Physics sequence from the current two semester sequence [5cr + 5cr] to a three semester one [4cr + (3+1)cr + (3+1)cr]. We believe the current two semester sequence gives students too much material in a short time. By making this change, we hope to accomplish the following:
 1. Give students more time to absorb the material.
 2. Improve student retention rate and understanding of physics.
This is the third course in the proposed General Physics series. The laboratory is separated from the lecture in order to give students options to take the course with or without the laboratory.

*****For General Education or Cultural Diversity Courses Only*****

General Education Course:		Cultural Diversity Course: (Please check one.) <input type="checkbox"/> Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.) <input type="checkbox"/> Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.)
GE Category #	GE Category Name (Maximum of 3 Categories)	
N/A		
N/A		
N/A		
? For Writing Intensive Courses, attach a description of the kind and quantity of writing. ? For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE.		
Attach paper copies of the following: a. Syllabus or course outline. b. Course's student learning outcomes associated with each GE competency or CD designation. c. List of strategies to be used to assess students' achievement of each GE competency or CD designation.		

*****For New Courses*****

(Check all that apply:)		Instructional Type:	Lecture	Course will be offered:
<input type="checkbox"/>	Course is an elective.	Grading Format:	<input checked="" type="checkbox"/> Grade <input type="checkbox"/> P/N	<input type="checkbox"/> Fall Semester
<input checked="" type="checkbox"/>	Course is required for program		Physics B.S.	<input checked="" type="checkbox"/> Spring Semester
<input checked="" type="checkbox"/>	Pre- or Co-requisites:		Both MATH 122 and PHYS 221 with a "C" or better	<input type="checkbox"/> Summer Session
<input checked="" type="checkbox"/>	Other courses are being changed or eliminated. (Explain.) PHYS 221 is being changed from 5cr to 4cr, and PHYS 222 is being changed from 5cr to 3cr. The lecture content being removed from those courses is going into this new course, PHYS 223.			
<input type="checkbox"/>	Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)			
Attach paper copies of the following: a. Syllabus or course outline. b. Course's student learning outcomes. c. A list of resources required to offer and support this course. d. A description of how teaching this course will affect department staffing. e. If 400/500 level course, an explanation of added expectations of graduate students.				



Minnesota State University, Mankato
Curriculum Proposal

Signature Page

Department

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Mark A. Pisch 9 Oct. 2007
Department Chair Date

Comments:

College Curriculum Committee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature] 10/30/07
Committee Chair Date

Comments:

College Dean

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature] 10/31/07
Dean Date

Comments:

General Education Subcommittee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

General Education Subcommittee Chair Date

Comments:

Undergraduate Curriculum and Academic Policy Committee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature] 12/19/07
UCAP Faculty Chair Date

Comments:

Faculty Association Graduate Committee

Recommended
 Not Recommended

Faculty Association Graduate Chair Date

Comments:

Graduate Dean

Recommended
 Not Recommended

Graduate Dean Date

Comments:

Academic Affairs Council

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Brenda Flannery 12/17/07
Assistant Vice President Date

Comments:

Senior Vice President and Vice President for Academic Affairs

Approved (Category/ies _____)
 Not Approved (Category/ies _____)

[Signature] 12/18/07
Sr. Vice President / Vice Pres. Academic Affairs Date

Comments:

PHYS 223 (3cr) General Physics III

Rationale:

We propose to change the General Physics sequence from the current two semester sequence [5cr + 5cr] to a three semester one [4cr + (3+1)cr + (3+1)cr]. We believe the current two semester sequence gives students too much material in a short time. By making this change, we hope to accomplish the following:

1. Give students more time to absorb the material.
2. Improve student retention rate and understanding of physics.

This is the third course in the proposed General Physics series. The laboratory is separated from the lecture in order to give students options to take the course with or without the laboratory.

Catalog Course Description:

Designed for science and engineering students. Calculus-based physics. Covers fluids, thermodynamics, mechanical and sound waves, geometrical optics, physical optics, and modern physics. Lecture only. (Associated laboratory course is PHYS 233.)

Pre: MATH 122 with a "C" or better; and PHYS 221 with a "C" or better.

Spring

Course Objectives:

To learn the physics of fluids.

To learn the laws of thermodynamics and the kinetic theory of gases.

To understand these concepts and be able to use the basic equations to solve physics problems involving pressure, temperature, heat and fluids.

To learn the basic physical concepts of mechanical waves and sound waves, and to understand the wave nature of light.

To be able to solve problems involving mechanical, sound and light waves.

To learn the basic laws in geometric optics and understand how simple optical instruments work.

To learn the basic concepts of modern physics.

<u>Topic</u>	<u>Chapters</u>	<u>Lectures</u>
Fluids	1	3
Temperature, heat and thermal process	2	6
Laws of thermodynamics	2	6-7
Mechanical and sound waves	2	6-7
Electromagnetic waves	1	2
Interference and diffraction	2	6-7
Geometric optics	2	6-7
Modern physics*	2	4-5
Total possible lectures		39-44
In class tests		3-4
Total allowed classes		42-44

* topics with flexibility in coverage.

Class meets three 50-minute periods a week for lecture. Students' learning outcomes are assessed by homework and tests

Learning outcomes:

To understand pressure and how to measure it.

To be able to calculate pressure in a fluid at rest.

To understand Pascal's Principle and Bernoulli's Principle and be able to use them to solve problems.

To know the difference between temperature and heat, and how to measure temperature.

To understand heat capacity and the nature of heat transfer, and to be able to solve problems involving thermal processes.

To understand the first and second laws of thermodynamics, and use these laws to solve problems.

To understand waves, and how to express waves mathematically.

To understand wave propagation, interference and diffraction.

To understand the wave nature of light, the propagation of light waves, refraction, dispersion, and polarization.

To be able to solve problems involving lenses, mirrors, and refracting surfaces.

To understand how simple optical instruments work.

To understand the major developments in modern physics.

Resources required: No new resource is required.

Staffing plan:

Offering this course has minor effects on the department's staffing plan. With careful planning, offering this course should not increase the load of the faculty presently in the department.

To: UCAP Committee members
From: Youwen Xu, Chair, CSET Curriculum Committee *y. Xu*
Date: Oct. 26, 2007
Subject: Endorsement for the proposed new General Physics course sequence

The endorsements for the proposed new General Physics course series (Phys 221, 222, 223, 232, and 233) from departments and programs that are affected by the changes are attached with the proposal of Phys 221. Please note that the endorsements are for the whole sequence, not just for one course.