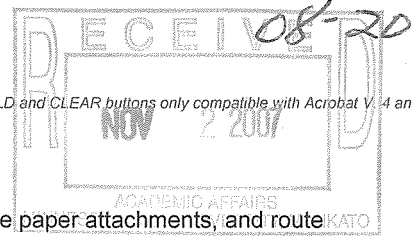




Minnesota State University, Mankato HOLD and CLEAR buttons only compatible with Acrobat V.4 and 5
Curriculum Proposal



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 # <u>62</u>
College:	Science, Engineering and Technology	<input checked="" type="checkbox"/> Undergraduate	Effective Date of Change:
Department:	Physics and Astronomy	<input type="checkbox"/> Graduate	Academic Year <u>07-08</u>
Program:	Physics B.S.	CIP # _____	(For Office Use Only)
Type of Change Proposed:	COURSE PROPOSALS		Course Designator and Number
Title Current:			Number of Credits
Title Proposed:	General Physics III Laboratory		PHYS 233
24-Char. Abbrev:	General Physics III Lab		1
			(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. Laboratory course accompanying PHYS 223. Experiments involving fluids, thermodynamics, mechanical waves, geometrical optics, and physical optics. Laboratory only. Pre: PHYS 221 with a "C" or better; and PHYS 223 or concurrent. 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 laboratory course accompanying PHYS 223 (General Physics III). Separating this course from PHYS 223 gives students options to take PHYS 223 with or without the laboratory component.

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

General Education Course:		Cultural Diversity Course:
GE Category #	GE Category Name (Maximum of 3 Categories)	(Please check one.)
N/A		<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.)
N/A		<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.)
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: <u>Lab</u>	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	<u>Physics B.S.</u>	<input checked="" type="checkbox"/> Spring Semester
<input checked="" type="checkbox"/> Pre- or Co-requisites:	<u>PHYS 221 with a C or better; PHYS 223 or concurrent</u>	<input type="checkbox"/> Summer Session
<input checked="" type="checkbox"/> Other courses are being changed or eliminated. (Explain.) <u>PHYS 221 is being changed from 5cr to 4cr, and PHYS 222 is being changed from 5cr to 3cr. The lab content from those courses relevant to PHYS 223 will be in the new lab course PHYS 233.</u>		
<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. Pech 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] 12/16/07
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 _____)

[Signature] 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 233 (1cr) General Physics III Laboratory

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 laboratory course accompanying PHYS 223 (General Physics III). Separating this course from PHYS 223 gives students options to take PHYS 223 with or without the laboratory component.

Catalog Course Description:

Designed for science and engineering students. Laboratory course accompanying PHYS 223. Experiments involving fluids, thermodynamics, mechanical waves, geometrical optics, and physical optics. Laboratory only.

Pre: PHYS 221 with a "C" or better; and PHYS 223 or concurrent.

Spring

Course Objectives:

To learn how to make observations, measurements involving fluids, temperature and heat, sound waves, and optics, and to learn how to draw conclusions from physics experiments.

Laboratory Schedule

Week	Experiments
1	Review of basic laboratory skills.
2	Buoyant force and Archimedes' Principle
3	Coefficient of Linear Expansion
4	Specific heat
5	Heat of Fusion of Ice
6	Speed of Sound by Direct Measurement
7	First Laboratory Test
8	Standing Wave on a Vibration String
9	Standing Wave in a Closed Pipe
10	Refraction
11	Dispersion
12	Focal length of a lens
13	Double Slit Interference
14	Diffraction Gratings
15	Second Laboratory Test

2 hours laboratory every week. Students' learning outcomes are assessed by laboratory reports and practical tests.

Learning Outcomes:

To be able to measure density, temperature, pressure, and thermal energy by using laboratory equipment.

To be able to measure the change of materials in a thermal process.

To understand fluids and thermodynamics concepts and use them in experiment data analysis.

To be able to measure wavelength, frequency, period, and amplitude of waves.

To observe interference and diffraction phenomena, and use these phenomena to measure physical quantities.

To be able to measure the focal length of a lens.

To observe the phenomena of wave propagation through materials.

Resources required: No new resources are 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.