

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		04-626	Apr 4/5/05	Apr 4/26/05

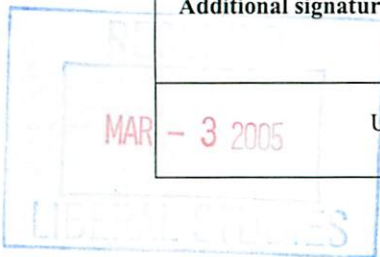
**Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee**

Contact Person Kenneth E. Hershman	Email Address hershman@iup.edu
Proposing Department/Unit Physics	Phone 724 357 2370

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

<b>1. Course Proposals (check all that apply)</b> <input type="checkbox"/> New Course <input type="checkbox"/> Course Prefix Change <input type="checkbox"/> Course Deletion <input type="checkbox"/> Course Revision <input type="checkbox"/> Course Number and/or Title Change <input type="checkbox"/> Catalog Description Change		
<i>Current Course prefix, number and full title</i>		<i>Proposed course prefix, number and full title, if changing</i>
<b>2. Additional Course Designations: check if appropriate</b> <input type="checkbox"/> This course is also proposed as a Liberal Studies Course. <input type="checkbox"/> Other: (e.g., Women's Studies, Pan-African) <input type="checkbox"/> This course is also proposed as an Honors College Course.		
BS - Physics <input checked="" type="checkbox"/> Catalog Description Change <input type="checkbox"/> Program Revision		
<b>3. Program Proposals</b> <input type="checkbox"/> New Degree Program <input type="checkbox"/> Program Title Change <input type="checkbox"/> Other <input type="checkbox"/> New Minor Program <input type="checkbox"/> New Track		
<i>Current program name</i>		<i>Proposed program name, if changing</i>
<b>4. Approvals</b>		
Department Curriculum Committee Chair(s)	<i>Kenneth E Hershman</i>	<i>12-10-04</i>
Department Chair(s)	<i>Kenneth E Hershman</i>	<i>12-10-04</i>
College Curriculum Committee Chair	<i>[Signature]</i>	<i>02/24/05</i>
College-Dean	<i>John J [Signature]</i>	<i>3/6/05</i>
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	<i>Gail Sedquist</i>	<i>4-5-05</i>

\* where applicable



## 1. Catalog Description For The Revised Bachelor of Science - Physics Program.

### Bachelor of Science—Physics

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 50

**Mathematics:** MATH 123

**Natural Science:** PHYS 131-141 and 132-142

**Liberal Studies Electives:** 4cr, MATH 124, no courses with PHYS prefix

### Major:

**Required Courses:** 37

PHYS 131	Physics I-C Lecture	*cr(1)
PHYS 132	Physics II-C Lecture	*cr(1)
PHYS 141	Physics I-C Lab	*cr(1)
PHYS 142	Physics II-C Lab	*cr(1)
PHYS 222	Mechanics I	2cr
PHYS 223	Mechanics II	2cr
PHYS 231	Electronics	4cr
PHYS 322	Electricity and Magnetism I	2cr
PHYS 323	Electricity and Magnetism II	2cr
PHYS 331	Modern Physics	3cr
PHYS 342	Thermal and Statistical Physics	3cr
PHYS 345	Optics	3cr
PHYS 350	Intermediate Experimental Physics I	3cr
PHYS 351	Intermediate Experimental Physics II	3cr
PHYS 473	Quantum Mechanics I	4cr

### Controlled Electives:

One course from the following: PHYS 472 or 490 3cr

One additional PHYS majors course 3cr

### Other Requirements:

COSC 110 Problem Solving and Structured Programming 3cr 13-19

MATH 241 Differential Equations 3cr

MATH 342 Advanced Mathematics for Applications 4cr

One course from the following:

COSC 250, MATH 171, 363, 421, 423 3cr

Foreign Language Intermediate Level (2)(3) 0-6cr

Free Electives 14-20

Total Degree Requirements 120

(1) Credits are counted in the Liberal Studies Natural Science Requirement.

(2) Intermediate-level Foreign Language may be included in Liberal Studies electives

**(3) 6cr of computer language may substitute for the foreign language requirement: COSC 110, and COSC 210 or higher-level computer science courses (COSC 250 recommended) with department permission.”**

## 2. Summary of Changes

## a. Table Comparing "Old" And "New" Bachelor of Science - Physics Programs

<b>"OLD" BACHELORS OF SCIENCE - PHYSICS PROGRAM</b>			<b>"NEW" BACHELORS OF SCIENCE - PHYSICS PROGRAM</b>		
<b>Liberal Studies:</b>		<b>50</b>	<b>Liberal Studies:</b>		<b>50</b>
As outlined in the Liberal Studies section with the following specifications: Mathematics: MATH 123 Natural Science: PHYS 131-141 and PHYS 132-142 <b>Liberal Studies Electives:</b> 4cr, MATH 124, no courses with PHYS prefix			As outlined in the Liberal Studies section with the following specifications: Mathematics: MATH 123 Natural Science: PHYS 131-141 and PHYS 132-142 <b>Liberal Studies Electives:</b> 4cr. MATH 124, no courses with PHYS prefix		
<b>"OLD" B S - PHYSICS PROGRAM</b>			<b>"NEW" BS - PHYSICS PROGRAM</b>		
<b>Major:</b>		<b>37</b>	<b>Major:</b>		<b>37</b>
<b>Required Courses:</b>			<b>Required Courses:</b>		
PHYS 131	Physics I-C Lecture	*cr(1)	PHYS 131	Physics I-C Lecture	*cr(1)
PHYS 132	Physics II-C Lecture	*cr(1)	PHYS 132	Physics II-C Lecture	*cr(1)
PHYS 141	Physics I-C Lab	*cr(1)	PHYS 141	Physics I-C Lab	*cr(1)
PHYS 142	Physics II-C Lab	*cr(1)	PHYS 142	Physics II-C Lab	*cr(1)
PHYS 222	Mechanics I	2cr	PHYS 222	Mechanics I	2cr
PHYS 223	Mechanics II	2cr	PHYS 223	Mechanics II	2cr
PHYS 231	Electronics	4cr	PHYS 231	Electronics	4cr
PHYS 322	Electricity and Magnetism I	2cr	PHYS 322	Electricity and Magnetism I	2cr
PHYS 323	Electricity and Magnetism II	2cr	PHYS 323	Electricity and Magnetism II	2cr
PHYS 331	Modern Physics	3cr	PHYS 331	Modern Physics	3cr
PHYS 342	Thermal and Statistical Physics	3cr	PHYS 342	Thermal and Statistical Physics	3cr
PHYS 242	Optics	3cr	PHYS 345	Optics	3cr
PHYS 350	Intermediate Experimental Physics I	3cr	PHYS 350	Intermediate Experimental Physics I	3cr
PHYS 351	Intermediate Experimental Physics II	3cr	PHYS 351	Intermediate Experimental Physics II	3cr
PHYS 473	Quantum Mechanics I	4cr	PHYS 473	Quantum Mechanics I	4cr
<b>Controlled Electives</b>			<b>Controlled Electives</b>		
One course from the following: PHYS 472, or 490		3cr	One course from the following: PHYS 472, or 490		3cr
One additional PHYS majors course		3cr	One additional PHYS majors course		3cr
<b>Other Requirements:</b>			<b>Other Requirements:</b>		
<b>Other Requirements:</b>		<b>13-19</b>	<b>Other Requirements:</b>		<b>13-19</b>
COSC 110	Problem Solving and Structured Programming	3cr	COSC 110	Problem Solving and Structured Programming	3cr
MATH 241	Differential Equations	3cr	MATH 241	Differential Equations	3cr
MATH 342	Advanced Mathematics for Applications	4cr	MATH 342	Advanced Mathematics for Applications	4cr
One course from the following: COSC 250, MATH 171, 363, 421, 423		3cr	One course from the following: COSC 250, MATH 171, 363, 421, 423		3cr
Foreign Language Intermediate Level (2)		0-6cr	Foreign Language Intermediate Level (2) (3)		0-6cr
<b>Free Electives:</b>		<b>14-20</b>	<b>Free Electives:</b>		<b>14-20</b>
<b>Total Degree Requirements:</b>		<b>120</b>	<b>Total Degree Requirements:</b>		<b>120</b>

Old Catalog Notes:

- (1) Credits are counted in the Liberal Studies Natural Science requirement.
- (2) Intermediate-Level Foreign Language may be included in Liberal Studies electives.

New Catalog Notes:

- (1) Credits are counted in the Liberal Studies Natural Science requirement.
- (2) Intermediate-Level Foreign Language may be included in Liberal Studies electives.
- (3) **6cr of computer language may substitute for the foreign language requirement: COSC 110 and COSC 210 or higher-level computer science courses (COSC 250 recommended) with department permission.**

**b. List of All Associated Course Changes (new or revised courses, number, title, or description changes, and deletions)**

PHYS 242 Optics was renumbered as PHYS 345 Optics.

“Footnote (3)” was added to the catalog description to make clear and apparent the foreign language options within this degree program.

**3. Justification/rationale for the change.**

As stated in the IUP catalog description of “The Foreign Language Requirement” of the College of Natural Science and Mathematics:

“Unless otherwise indicated, each department adheres to the following foreign language requirement.....”

By otherwise indicating, the College of Natural Science and Mathematics permits the departments to utilize appropriate computer science courses to substitute for the foreign language requirement.

Other degrees within the College of Natural Science and Mathematics allow the substitution of computer science for foreign language coursework e.g. BS - Biology, BS – Geology/Geology Track, BS – Geology/Environmental Track.

There is an increased skill level in computer languages expected by industry according to a Physics Department survey of our graduates conducted in the fall of 2004.

The Physics Department has allowed the substitution of computer science coursework for the foreign language requirement in past practice and this revision makes this substitution legitimate.

**Ken Hershman**

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**From:** "Ken Hershman" <hershman@iup.edu>  
**To:** "Charles McCreary" <ChasMc@grove.iup.edu>; "Roger Smith" <RSMITH@grove.iup.edu>  
**Cc:** "VJ Wijekumar" <vjwije@iup.edu>; <wlf@grove.iup.edu>; <talwar@grove.iup.edu>; "Muhammad Numan" <mznuman@grove.iup.edu>; "Ken Hershman" <HERSHMAN@grove.iup.edu>  
**Sent:** Thursday, December 09, 2004 3:00 PM  
**Subject:** clarification of Foreign Language statement in IUP catalog (Physics degree's)

Dr.s McCreary and Smith,

Since the option became available, the Physics Department has allowed our majors to choose to complete the foreign language either by completing the standard 6cr of intermediate level of foreign language or 6cr of computer science language. Explicitly this latitude is not conveyed in the current catalog statement which simply states they are expected to take 0 - 6cr of foreign language. To make this option clear, we wish to add the following footnote to the catalog description of this requirement in our BA, BS in Physics and our Applied Physics degrees:

**(3) 6cr of computer language may substitute for the foreign language requirement: COSC 110; and COSC 210 or higher-level computer science courses (COSC 250 recommended) with department permission.**

The Physics Department invites your input into this clarification since it is directly related to your offerings but we would anticipate it to have little effect on your enrollments.

Sincerely,

Ken Hershman  
Chairman  
IUP Physics Department