

1. Catalog Description For The Revised Bachelor of Science-Applied Physics/Electro-Optics Track Program.

Bachelor of Science–Applied Physics/Electro-Optics Track

Liberal Studies: As outlined in Liberal Studies section with the following specifications: 50
Mathematics: MATH 121
Natural Science: CHEM 111-112
Liberal Studies Electives: 4cr, MATH 122, no courses with PHYS prefix

Major: 44

Required Courses:

EOPT 105	Computer Interfacing in Electro-Optics	3cr
EOPT 110	Geometric Optics	3cr
EOPT 120	Wave Optics	3cr
EOPT 125	Introduction to Electronics	4cr
PHYS 100	Prelude to Physics	3cr
PHYS 115	Physics I for Electro-Optics	3cr
PHYS 116	Physics II-for Electro-Optics	3cr
PHYS 222	Mechanics I	2cr
PHYS 322	Electricity and Magnetism I	2cr
PHYS 331	Modern Physics	3cr
PHYS 350	Intermediate Experimental Physics I	3cr
Choose two of the following three courses:		6cr
EOPT 210	Detection and Measurement	
EOPT 220	Introduction to Lasers	
MGMT 234	Introduction to Quality Control	
Choose two of the following three courses:		6cr
EOPT 240	Fiber Optics	
EOPT 250	High-Vacuum Technology	
EOPT 260	Industrial Applications of Lasers	

Other Requirements:

COSC/BTED/IFMG 101 or COSC/BTED/COMM/IFMG 201	3cr	15-21
COSC 110	Problem Solving and Structured Programming	3cr
COSC 250	Introduction to Numerical Methods	3cr
MATH 241	Differential Equations	3cr
SAFE 145	Workplace Safety Today and Tomorrow	3cr
Foreign Language Intermediate Level (1) (2)	0-6cr	

Free Electives 5-11

Total Degree Requirements 120

(1) Credits are counted in the Liberal Studies Natural Science Requirement.
(2) 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" Applied Physics Programs
(Changes are shown in bold and italics in the new program.)

"OLD" APPLIED PHYSICS PROGRAM		"NEW" APPLIED PHYSICS PROGRAM	
Liberal Studies: As outlined in Liberal Studies section with the following specifications: Mathematics: MATH 121 Natural Science: CHEM 111-112 Liberal Studies Electives: 4cr, MATH 122, no courses with PHYS prefix	50	Liberal Studies: As outlined in Liberal Studies section with the following specifications: Mathematics: MATH 121 Natural Science: CHEM 111-112 Liberal Studies Electives: 4cr, MATH 122, no courses with PHYS prefix	50
Major:	28	Major:	28
Required Courses:		Required Courses:	
EOPT 105 Computer Interfacing in Electro-Optics	3cr	EOPT 105 Computer Interfacing in Electro-Optics	3cr
EOPT 110 Geometric Optics	3cr	EOPT 110 Geometric Optics	3cr
EOPT 120 Wave Optics	3cr	EOPT 120 Wave Optics	3cr
EOPT 125 Introduction to Electronics	4cr	EOPT 125 Introduction to Electronics	4cr
PHYS 100 Prelude to Physics	3cr	PHYS 100 Prelude to Physics	3cr
PHYS 115 Physics I for Electro-Optics	3cr	PHYS 115 Physics I for Electro-Optics	3cr
PHYS 116 Physics II for Electro-Optics	3cr	PHYS 116 Physics II for Electro-Optics	3r
PHYS 222 Mechanics I	2cr	PHYS 222 Mechanics I	2cr
PHYS 322 Electricity and Magnetism I	2cr	PHYS 322 Electricity and Magnetism I	2cr
PHYS 331 Modern Physics	3cr	PHYS 331 Modern Physics	3cr
PHYS 350 Intermediate Experimental Physics I	3cr	PHYS 350 Intermediate Experimental Physics I	3cr
Choose two of the following three courses: EOPT 210 Detection and Measurement EOPT 220 Introduction to Lasers MGMT 234 Introduction to Quality Control	6cr	Choose two of the following three courses: EOPT 210 Detection and Measurement EOPT 220 Introduction to Lasers MGMT 234 Introduction to Quality Control	6cr
Choose two of the following three courses: EOPT 240 Fiber Optics EOPT 250 High-Vacuum Technology EOPT 260 Industrial Applications of Lasers	6cr	Choose two of the following three courses: EOPT 240 Fiber Optics EOPT 250 High-Vacuum Technology EOPT 260 Industrial Applications of Lasers	6cr
Other Requirements:	15-21	Other Requirements:	15-21
COSC/BTED/IFMG 101 or COSC/BTED/COMM/IFMG 201	3cr	COSC/BTED/IFMG 101 or COSC/BTED/COMM/IFMG 201	3cr
COSC 110 Problem Solving and Structured Programming	3cr	COSC 110 Problem Solving and Structured Programming	3cr
COSC 250 Introduction to Numerical Methods	3cr	COSC 250 Introduction to Numerical Methods	3cr
MATH 241 Differential Equations	3cr	MATH 241 Differential Equations	3cr
SAFE 145 Workplace Safety Today and Tomorrow	3cr	SAFE 145 Workplace Safety Today and Tomorrow	3cr
Foreign Language Intermediate Level	0-6cr	Foreign Language Intermediate Level (1) (2)	0-6cr
Free Electives:	5 - 11	Free Electives:	5 - 11
Total Degree Requirements:	120	Total Degree Requirements:	120

Old Catalog Notes:
none

New Catalog Notes:

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

“Footnote (1)” was added to emphasize the possible use of foreign language credits toward the Liberal Studies electives expectation.

“Footnote (2)” 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

From: "Ken Hershman" <hershman@iup.edu>
To: "Charles McCreary" <ChasMc@grove.iup.edu>; "Roger Smith" <RSMITH@grove.iup.edu>
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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