Program Change Request

Date Submitted: 04/23/24 12:29 pm

Viewing: **BS-PHYS-3 : Bachelor of Science in Physics**

Last approved: 10/23/20 4:39 pm

Last edit: 04/23/24 12:28 pm

Changes proposed by: segre

Catalog Pages
Using this Program
[Bachelor of Science in Physics](#)

Program Status	Active	
Requestor	Name	Carlo Segre ~~Holli Pryor-Harris~~	E-mail
	segre@iit.edu ~~pryor@iit.edu~~	
Origination Date	2024-4-23 ~~2020-10-23~~	
Is this an interdisciplinary program?	No	
Academic Unit	Physics	
College	Lewis College of Science and Letters	
Program Title	Bachelor of Science in Physics	
Effective Academic Year	2024 ~~2020~~ - 2025 ~~2021~~	Effective Term Spring 2025
Academic Level	Undergraduate	

In Workflow

1. **PHYS Chair**
2. **Academic Affairs**
3. **Undergraduate Academic Affairs**
4. **LS Dean**
5. **Undergraduate Studies Committee Chair**
6. Faculty Council Chair
7. Academic Affairs

Approval Path

1. 04/22/24 4:10 pm Pavel Snopok (psnopok): Approved for PHYS Chair
2. 04/23/24 11:28 am Ayesha Qamer (aqamer): Rollback to Initiator
3. 04/23/24 11:56 am Ayesha Qamer (aqamer): Rollback to Initiator
4. 04/24/24 10:41 am Pavel Snopok (psnopok): Approved for PHYS Chair
5. 04/24/24 10:57 am Ayesha Qamer (aqamer): Approved for Academic Affairs
6. 04/24/24 11:23 am Joseph Gorzkowski (jgorzkow): Approved for

History

If all courses in a subject in your department are required, please enter each subject followed by the number ranges in the "Quick Add" field in the pop up box when you click the green plus button below. For example: ARCH 100-499.

What courses will
factor the major
GPA?

Program Type   Degree

Degree Type   Bachelor of Science (BS)

CIP Code
  40.0801 - Physics, General.

Is there more than one Academic Unit proposer?

  No

Program Code   BS-PHYS-3

Program Attribute

Total Program
Credit Hours

120 ~~126~~

Rationale for
change in program
credit hours.

We are reducing the total credits in accordance with the university-wide change in minimum credit hours for a BS degree.

Please provide a
summary and
rationale for the
requested program
revision.

We are dropping PHYS 348 (Modern Physics for Scientists and Engineers) as a required course for all our departmental majors (as well as the Physics minor). The material in PHYS 348 is covered completely in the combination of PHYS 223/224, PHYS 304, and PHYS 405 (all required classes) making the material in PHYS 348 redundant. Having PHYS 348 as part of our required curriculum is therefore not necessary and effectively serves as a hindrance in its current role as the gatekeeper for all higher level physics classes. Replacing PHYS 348 with a Technical Elective (defined below) will better serve our Physics majors.

10/23/2020 Updated program iteration code and effective CAT year/term for College Reorg. HPH

04/20/2024 - We are dropping the MATH Elective and the Technical Elective to reduce the total credit hours to 120. ~~HPH~~

Program Narrative and Justification

Narrative description of how the institution determined the need for the program. For example, describe what need this program will address and how the institution became aware of that need. If the program is replacing a current program(s), identify the current program(s) that is being replaced by the new program(s) and provide details describing the benefits of the new program(s). If the program will be offered in connection with, or in response to, an initative by a governmental entity, provide details of that initiative.

Narrative description of how the program was designed to meet local market needs, or for an online program, regional or national market needs. For example, indicate if Bureau of Labor Statistics data or State labor data systems information was used, and/or if State, regional, or local workforce agencies were consulted. Include how the course content, program length, academic level, admission requirements, and prerequisites were decided; including information received from potential employers about course content; and information regarding the target students and employers.

Narrative description of any wage analysis the institution may have performed, including any consideration of Bureau of Labor Statistics wage data related to the new program.

Narrative description of how the program was reviewed or approved by, or developed in conjunction with, one or more of the following: a) business advisory committees; b) program integrity boards; c) public or private oversight or regulatory agencies (not including the state licensing/authorization agency and accrediting agency); and d) businesses that would likely employ graduates of the program. For example, describe the steps taken to develop the program, identify when and with whom discussions were held, provide relevant details of any proposals or correspondence generated, and/or describe any process used to evaluate the program.

Admission Entry Details

What are the enrollment estimates?

Year 1   Year 2   Year 3

Attach Additional
Program
Justification
Document(s)

Academic Information

Advising

Since quality advising is a key component of good retention, graduation, and career placement, how will students be mentored? What student professional organizations will be formed? How will the department work with the Career Services office to develop industry connections?

Program Resources

Which program
resources are

necessary to offer
this program?

Admission
Requirements

Course Requirements

Required Courses

Physics Requirements		(53)
PHYS 100	Intro to the Profession	2
PHYS 123	General Physics I: Mechanics	4
PHYS 221	General Physics II: Electricity and Magnetism	4
PHYS 223	General Physics III	4
PHYS 240	Computational Science	3
PHYS 300	Instrumentation Laboratory	4
PHYS 301	Mathematical Methods of Physics	3
PHYS 304	Thermodynamics and Statistical Physics	3
PHYS 308	Classical Mechanics I	3
PHYS 309	Classical Mechanics II	3
PHYS 405	Fundamentals of Quantum Theory I	3
PHYS 406	Fundamentals of Quantum Theory II	3
PHYS 413	Electromagnetism I	3
PHYS 414	Electromagnetism II	3
PHYS 427	Advanced Physics Laboratory I	3
PHYS 440	Computational Physics	3
PHYS 485	Physics Colloquium	1
PHYS 485	Physics Colloquium	1
Technical Elective Requirement		
Select 3 credit hours [1]		3
Mathematics Requirements		(18)

MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 251	Multivariate and Vector Calculus	4
MATH 252	Introduction to Differential Equations	4
~~Mathematics Elective~~		
~~Select three credit hours~~		~~3~~
Chemistry Requirements		(8)
CHEM 124	Principles of Chemistry I with Laboratory	4
CHEM 125	Principles of Chemistry II with Laboratory	4
Computer Science Requirement		(2)
CS 105	Introduction to Computer Programming	2
or CS 115	Object-Oriented Programming I	
Humanities and Social Science Requirements		(21)
See Illinois Tech Core Curriculum, sections B and C		21
Interprofessional Projects (IPRO)		(6)
See Illinois Tech Core Curriculum, section E		6
Free Electives		(12)
Select 12 credit hours		12
Total Credit Hours		120

~~1~~

~~A technical elective is:~~
~~Any Physics course at or above the 300-level~~
~~OR~~
~~Any College of Science or College of Engineering course at or above the 300-level, chosen with approval of the student's advisor~~

Sample Curriculum/Program Requirements

Bachelor of Science in Physics Curriculum

Semester 1	Credit Hours	Semester 2	Year 1 Credit Hours
PHYS 100	2	PHYS 221	4
PHYS 123	4	CHEM 125	4
CHEM 124	4	MATH 152	5
MATH 151	5	Humanities 200-level Course	3

	15		16
			Year 2
Semester 1	Credit Hours	Semester 2	Credit Hours
PHYS 223	4	PHYS 240	3
MATH 251	4	PHYS 304	3
CS 105 or 115	2	MATH 252	4
Social Sciences Elective	3	Social Sciences Elective (300+)	3
Humanities Elective (300+)	3	~~Social Sciences Elective (300+)~~	~~3~~
	16		13
			Year 3
Semester 1	Credit Hours	Semester 2	Credit Hours
PHYS 300	4	PHYS 309	3
PHYS 301	3	PHYS 406	3
PHYS 308	3	~~Technical Elective[1]~~	~~3~~
PHYS 405	3	IPRO Elective I	3
Free Elective	3	Free Elective	3
		Humanities Elective (300+)	3
	16		15
			Year 4
Semester 1	Credit Hours	Semester 2	Credit Hours
PHYS 413	3	PHYS 414	3
PHYS 427	3	PHYS 440	3
PHYS 485	1	PHYS 485	1
IPRO Elective II	3	Free Elective	3
Free Elective	3	~~Free Elective~~	~~3~~
Social Sciences Elective (300+)	3	Humanities or Social Sciences Elective	3
	16		13

Total Credit Hours: 120

~~1~~

~~A technical elective is:~~

~~Any Physics course at or above the 300-level~~

~~OR~~

~~Any College of Science or College of Engineering course at or above the 300-level, chosen with approval of the student's advisor~~

Specialization Requirements

Program Outcomes and Assessment Process

What are your learning objectives in this program? Please list each learning objective in the boxes below:

Note: These should be the same as described in your assessment plan at the bottom of this form.

Upload your
assessment plan
here:

Undergraduate Program Requirements

What courses will
factor the major
GPA?

Undergraduate Degree Requirements

Minimum credit   120 ~~126~~
hours

Specialization
required?
  No

Minor required?
  No

Proposed General Curriculum

List Major Course
Requirements

List Mathematics
Requirements

List Science Requirements	
List Computer Science Requirements	
List Humanities and Social Sciences Requirements	
List Interprofessional Project (IPRO) Requirements	
List Technical Elective Course Options	
List Free Elective Credit Hours (if applicable)	12
Semester-by-semester plan of study for the degree program	

Report to Faculty Council

Reviewer Comments

Ayesha Qamer (aqamer) (04/23/24 11:28 am): Rollback: Please revise the total credit hours under the "course requirements" section. The total credit hours are listed as 126 and the total program credit hours at the top of the form says 120 hours which does not match.

Ayesha Qamer (aqamer) (04/23/24 11:56 am): Rollback: Rollback requested by Carlo Segre