KENT STATE UNIVERSITY

Roadmap: Physics – Physics Interdisciplinary-Applied Mathematics and Computer Science - Bachelor of Science
[AS-BS-PHY-PMCS]
College of the Arts and Sciences
Department of Physics
Computer Science Minor [CS]
College of the Arts and Sciences
Department of Computer Science
Catalog Year: 2009-2010

Critical requirements are boldface in shaded areas

Course Subject and Title	Credit Hours	Upper Division	Min. Grade	Important Notes
Semester One: [17 Credit Hours]				
CS 10051 Introduction to Computer Science	**4**			
MATH 12002 Analytic Geometry and Calculus I	**5**			**Fulfills LER Mathematics and Critical Reasoning; prerequisites: MATH 11010 and 11022 may be bypassed with sufficient background**
PHY 12000 Introductory Physics Seminar	**1**			
ENG 11011 College Writing I	3			Fulfills LER Composition
US 10097 Destination Kent State: FYE	1			Not required for transfer students with 25 credits
LER Humanities or Fine Arts	3			Visit www.kent.edu/catalog and search "LER" and "diversity" for course lists
Semester Two: [14 Credit Hours]				
CS 23021 Computer Science I: Programming and Problem Solving	**4**			
MATH 12003 Analytic Geometry and Calculus II	**5**			
PHY 23101 General University Physics I	**5**			
Semester Three: [16-17 Credit Hours]				
Requirement: declare the Computer Science minor				
CS 23022 Discrete Structures	**3**			
MATH 32051 Mathematical Methods in Physical Sciences I	**4**	■		
PHY 23102 General University Physics II	**5**			
Foreign Language (Elementary I)	4-5			
Semester Four: [14-15 Credit Hours]				
MATH 32052 Mathematical Methods in the Physical Sciences II	**4**	■		
PHY 36001 Introductory Modern Physics	**3**	■		
ENG 21011 College Writing II	3			Fulfills LER Composition
Foreign Language (Elementary II)	4-5			
Semester Five: [16 Credit Hours]				
PHY 30020 Intermediate Physics Laboratory	**2**	■	**C**	**Fulfills writing-intensive course requirement**
PHY 35101 Classical Mechanics	**4**	■		
PHY 36002 Applications of Modern Physics	**3**	■		
PHY 45201 Electromagnetic Theory	**4**	■		
LER Social Sciences	3			Should fulfill diversity requirement; visit www.kent.edu/catalog and search "LER" and "diversity" for course lists
Semester Six: [13-15 Credit Hours]				
CS 33001 Computer Science II: Data Structures and Abstraction	**3**	■		
CS Elective (upper division)	3	■		
LER Fine Arts	3			Should fulfill diversity requirement if not satisfied earlier; visit www.kent.edu/catalog and search "LER" and "diversity" for course lists
LER Humanities	3			
General Elective (lower or upper division)	1-3			Recommended: MATH 21011; number of credits depends on meeting 121 credit hours

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Course Subject and Title	Credit Hours	Upper Division	Min. Grade	Important Notes
Semester Seven: [15 Credit Hours]				
CHEM 10060 General Chemistry I	**4**			**Fulfills LER Basic Sciences**
CHEM 10062 General Chemistry Laboratory I	**1**			**Fulfills LER Basic Sciences**
CS 42201 Introduction to Numerical Computing I	**3**	■		**Prerequisites: MATH 12003 and 21001**
PHY 40020 Advanced Physics Laboratory	**2**	■	**C**	**Fulfills writing-intensive course requirement**
PHY 40092 Internship in Physics	**2**	■		**See note below**
LER Additional	3			Should fulfill diversity requirement if not satisfied earlier; visit www.kent.edu/catalog and search "LER" and "diversity" for course lists
Semester Eight: [14 Credit Hours]				
CHEM 10061 General Chemistry II	**4**			**Fulfills LER Additional**
CHEM 10063 General Chemistry Laboratory II	**1**			**Fulfills LER Basic Sciences**
CS Elective (upper division)	3	■		
PHY Elective (upper division)	3	■		
LER Social Sciences	3			Should fulfill diversity requirement if not satisfied earlier; visit www.kent.edu/catalog and search "LER" and "diversity" for course lists

Graduation Requirements Summary

Total Hours	Upper-Division Hours	Liberal Education Requirements Hours	Diversity Course Global / Domestic	Writing-Intensive	Minimum Major GPA	Minimum Overall GPA
121	42	45	LER or General Electives	PHY 30020 or PHY 40020	2.0	2.0

Note: With advisor's permission. PHY 40092 may be replaced with PHY 40096 Individual Investigation or PHY 40099 Senior Honors Thesis. If PHY 40096 is taken, a suitable research project should be selected.

Additional Notes for the Physics major:

1. The following courses **may not** count towards the major:

PHY 11030 Seven Ideas that Shook the Universe	3	PHY 21430 Frontiers in Astronomy	3
PHY 21040 Physics in The Entertainment and the Arts	3	PHY 24001 Astronomy	3
PHY 21041 Physics in The Entertainment and the Arts Laboratory	1		

2. Credit is not granted for both the PHY 13001/PHY 13002 and the PHY 23101/PHY 23102 series, nor for the PHY 13011/ PHY 13012 series.

Liberal Education Requirements (LER)
Students must complete a minimum 36 credit hours of Liberal Education Requirements. Colleges or degree programs may specify certain courses to fulfill the requirements. Courses in the students' major field will not count toward the completion of any LER. Honors equivalents shall satisfy the LER. None of the courses on the LER list may be taken with a pass/fail grade.

Diversity Course Requirement
Students must complete a two-course diversity requirement, consisting of one with a domestic focus and one with a global focus. One course must be come from the LER and cannot be in the student's major. The second course may be taken as a second LER; or within a major or minor; or as a general elective; or, with dean's approval, by completing one semester of study in another country.

Writing-Intensive Course Requirement
Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.00) grade.

Upper-Division Requirement
In general, baccalaureate programs require the successful completion of at least 39 upper-division (numbered 30000 to 49999) credit hours of coursework. Programs in the College of Arts and Sciences require a minimum of 42 hours of upper-division coursework.