APPLIED PHYSICS-B.S.
(Pre-Engineering)

General Education Requirements
I. Required Skills and Competencies 16 cr
   ___ ENG 106 Writing Intensive First Year Seminar OR
   ENG 110 Advanced Placement Writing (3 cr)
   May need ENG 050 Basic Writing first, based on test results.
   ___ HCS 100 Intro to Human Communication (3 cr)
   ___ Mathematical Competency-Required
   MAT 211 Calculus I —if necessary, student may need
   MAT 175 Pre-Calculus first
   ___ HIS 105 Historical Foundations of Global Cultures (3 cr) AND
   ___ HIS 106 Thinking Historically in a Global Age (3 cr)

II. Categories of Knowledge 36 cr
A: Logic/Numbers for Rational Thinking (4 cr)
   ___ MAT 212 Calculus II
B: Literary, Artistic & Cultural Traditions (9 cr)
   ___ ______________________________
   ___ ______________________________
   ___ ______________________________
C: Biological & Physical Sciences (11 cr)
   ___ CHM 121 Chemical Bonding
   ___ PHY 221 Fundamentals Physics I
   ___ ______________________________
D: Political, Economic & Geographic Science (6 cr)**
   ___ ECO 101 Principles of Macroeconomics or
   ___ ECO 102 Principles of Microeconomics
   ___ ______________________________
   ___ ______________________________
E: Social & Behavioral Science (6 cr)**
   ___ ______________________________
   ___ ______________________________
   **Must include a sequence in one discipline, either CAT D or E

III. Library Skills Completed as part of the College Writing or Advanced Writing
     course

Physics' Core Requirements 32 cr
   ___ PHY 107 Freshman Seminar Physics I (2 cr)
   ___ PHY 221 Fundamentals of Physics I (5 cr)
   ___ PHY 222 Fundamentals of Physics II (5 cr)
   ___ PHY 301 Math and Numerical Techniques (4 cr)
   ___ PHY 311 Quantum I (4 cr)
   ___ PHY 321 Electricity and Magnetism I (4 cr)
   ___ PHY 331 Mechanics I (4 cr)
   ___ PHY 341 Classical and Statistical Thermo (4 cr)

Mathematics/Computer Science Requirements 22 cr
   ___ MAT 211 Calculus I (4 cr) *
   ___ MAT 212 Calculus II (4 cr) *
   ___ MAT 213 Calculus III (4 cr)
   ___ MAT 318 Elementary Linear Algebra (3 cr)
   ___ MAT 322 Differential Equations (3 cr)
   ___ CSC 110 Computer Science I (3 cr)
   ___ CSC 106 Computer Science I lab (1 cr)

Chemistry Requirements 10 cr
   ___ CHM 121 Chemical Bonding (3 cr) *
   ___ CHM 125 Lab IB (1 cr)
   ___ CHM 122 Chemical Dynamics (3 cr)
   ___ CHM 126 Lab IIB (3 cr)

Economics Requirement* 3 cr
   ___ ECO 101 Principles of Macroeconomics* or
   ___ ECO 102 Principles of Microeconomics*

*Major requirement double counts as General Education Credits
A sequence of courses in one discipline is required by engineering programs at other institutions per the 3-2 agreement with Shippensburg. Total Credits Required From Shippensburg 103 cr

GPA Needed to Declare: 2.5
The student must maintain a 3.0 GPA to be assured of entry into an engineering school.

Helpful Hints for Advising:
Semester I MAT 211 Calculus I
PHY 107 Physics First Year Seminar
Three Gen Ed Courses
Semester II MAT 212 Calculus II
PHY 221 Fundamentals of Physics I*
Three Gen Ed Courses
*Students are recommended to complete 1 semester of calculus before starting the physics sequence.
Chemistry should be taken in the junior year. Exceptional students may take it earlier.
Chemical Engineering requires one year of Organic Chemistry.
A nanofabrication concentration is available. See the department for more information.