

The Engineering Physics program under semesters will consist of 8 different specializations, each of which leads to a Bachelor of Sciences degree in Engineering Physics. The specializations each consist of a common core of Engineering, Physics, Math and prerequisite courses, along with additional required and/or recommended courses in selected Engineering disciplines. Beside each course is listed in parentheses the expected number of semester credit hours. A sample schedule under semesters is shown in Appendix A.

I. General Education Courses (Required of all Engineering Students)

- A. Writing Level 1 (3)
- B. Writing Level 2 (3)
- C. Literature (3)
- D. Arts (3)
- E. Historical Study (3)
- F. Social Science 1 (3)
- G. Social Science 2 (3)
- H. Culture and Ideas or Historical Study (3)

II. Engineering Core (Required of all Engineering Students)

- A. Engineering Survey 1100 (1)
- B. First Year Engineering 1181 (2)
- C. First Year Engineering 1182 (2)
- D. Physics 1250: Introductory Mechanics, Thermodynamic and Waves (5)
- E. Physics 1251: Introductory Electricity & Magnetism, Special Relativity and Quantum Mechanics (5)
- F. Math 1251: Calculus I (5)
- G. Math 1258: Calculus II (5)

III. Prerequisites (Required for all Engineering Physics Degree Specializations)

- A. CSE 1222: Introduction to C++ programming (2)

IV. Math Prerequisites (Required for all Engineering Physics Degree Specializations)

- A. Math 2249: Calculus III (3)
- B. Math 2431: Linear Algebra and Differential Equations (3)

V. Core Physics (Required for all Engineering Physics Degree Specializations)

- A. Physics 2300: Intermediate Mechanics and Mathematical Methods for Physicists I (4)
- B. Physics 2301: Intermediate Mechanics and Mathematical Methods for Physicists II (4)
- C. Physics 2295: Physics Undergraduate Seminar (1)
- D. Physics 3700: Methods in Experimental Physics Lab (3)

E. Physics 5400/H5400: Electricity and Magnetism I (regular/honors) (4)

F. Physics 5500/H5500: Quantum Mechanics I (regular/honors) (4)

G. Specialized Laboratory: Physics 4700: Electronics Laboratory (3)

H. Physics 5700: Advanced Laboratory (3)

VI. Capstone Design Course (Required for all Engineering Physics Degree Specializations)

This is a new requirement. Engineering Physics is seeking ABET accreditation for the first time, and a capstone experience is required for such accreditation. We anticipate a two semester sequence, with each course in the sequence worth 3 credit hours. However, since some of our students may seek to satisfy this requirement in other departments (such as the department in which they will specialize), our formal credit hour requirement will be ≥ 5 credit hours.

A. Physics 5800: Engineering Physics Capstone I (3)

B. Physics 5801: Engineering Physics Capstone II (3)

VII. Elective Physics (at least one course of ≥ 3 credit hours must be chosen):

A. Physics H5501: Honors Quantum Mechanics II (4)

B. Physics H5401: Honors Electricity and Magnetism II (4)

C. Physics 5600: Thermodynamics and Statistical Physics (4)

D. Physics 3470: Optics (3)

E. Physics H3455: Honors Holography (3)

F. Physics 68xx: Special Topics in Physics (4)

G. Physics 5300: Classical Mechanics (4)

VIII. Specialization Requirements:

These are a set of technical electives chosen arranged in eight possible specializations depending on the interests of the student. We currently require a minimum of 30 hours within each specialization under quarters, and we will require a minimum of 24 semester hours of courses at the 2000 level or above will be required for each specialization. The specialization options are:

A. Aerospace Engineering

B. Chemical and Biomolecular Engineering

C. Computer and Information Science

D. Electrical and Computer Engineering

E. Industrial and Systems Engineering

F. Materials Science and Engineering

G. Mechanical Engineering

H. Nuclear Engineering

IX. Engineering/Math/Physics Technical Electives:

At least 12 credit hours must be chosen in Math, Physics, or Engineering courses at a level of 2000 or above, according to the interests of the student.