

Physics

Physics

PHYSI 1100 - 4 Credits

Conceptual study of laws of motion, forces, energy and momentum, properties and states of matter, heat and thermodynamics, wave motion, sound, light, electricity and magnetism, and atomic and nuclear physics. Prerequisite: Mathematics 0481 (or college equivalent) with a grade of C or better or qualifying score on the mathematics placement test or a qualifying A.C.T. math score. Course requires Reading Placement Test Score-Category One (3 lecture hours, 3 lab hours)

Lab Microprocessors and Microcontrollers

PHYSI 1115 - 1 Credits

Basic programming of microprocessors and microcontrollers that may be used in physics. Lab format with hands-on projects. Prerequisite: Consent of instructor is required. (2 lab hours)

Physics and Society

PHYSI 1150 - 3 Credits

Study of applications of physics to society. This may specifically include the study of energy, thermodynamics, electrical power generation, electric circuits, nuclear power, nuclear weapons and modern particle physics. Prerequisite: Mathematics 0481 with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours)

Applications of Physics in Society

PHYSI 1152 - 3 Credits

Study of applications of physics to society. Includes the study of energy, thermodynamics, electrical power generation, electric circuits, nuclear power, nuclear weapons, and modern particle physics. Lab component included. Students receive credit for either Physics 1150 or 1152. Prerequisite: Mathematics 0481 with a grade of C or better or a qualifying score on the mathematics placement test (3 lecture hours, 3 lab hours)

Technical Physics I

PHYSI 1161 - 4 Credits

Conceptual and algebra-based study of classical mechanics, electricity and magnetism including laws of motions, forces, momentum, work, energy, rotational motion, electric charges, electric currents, circuits, magnetism, magnetic effects and electromagnetic induction. Emphasis is on physical concepts as applied to industrial/technical fields through completion of team projects. Prerequisite: Mathematics 0481 with a grade of C or better or equivalent and Mathematics 1115

or Mathematics 1432 with a grade of C or better or equivalent or consent of instructor (3 lecture hours, 3 lab hours)

Technical Physics II

PHYSI 1162 - 4 Credits

Conceptual and algebra-based study of matter properties, temperature and heat, ideal gases, wave motion, sound, light, AC electricity, and select topics of modern physics. Emphasis is on physical concepts as applied to industrial/technical fields in a series of team projects. Prerequisite: Physics 1161 with a grade of C or better or equivalent (3 lecture hours, 3 lab hours)

General Physics I

PHYSI 1201 - 5 Credits

Algebra and trigonometry-based study of classical linear and rotational kinematics and dynamics (including work, energy, impulse, momentum, and collisions), fluids, heat, thermodynamics, periodic motion, and wave motion. Course is intended for students that have taken high school physics and have experience with right-angle trigonometry. (Students without high school physics are encouraged to complete Physics 1100 before enrolling in this course.) Prerequisite: Mathematics 1115 (or college equivalent) or Mathematics 1431 (or college equivalent) either with a grade of C or better or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score. Course requires Reading Placement Test Score-Category One (4 lecture, 2 lab hours)

General Physics II

PHYSI 1202 - 5 Credits

Algebra-based study of electrostatics, electric fields, Gauss' law, capacitance, current, resistance, magnetic forces and fields, electromagnetic induction, DC and AC circuits, electromagnetic waves, mirrors, lenses, optics, and modern physics. Note: The standard prerequisite is Physics 1201. While Physics 2111 may serve as an alternative prerequisite for taking this COD course, students are advised to check with their intended transfer institution(s) to ensure that the thermodynamics covered in Physics 1201 is not a requirement prior to embracing this alternative. Prerequisite: Physics 1201 or Physics 2111 with a grade of C or better (4 lecture hours, 2 lab hours)

Special Project

PHYSI 1800 - 1-3 Credits

Special project courses cover topics not otherwise covered by general education courses and other courses in the Catalog for the discipline. These courses require direct experience and focused reflection in an in-depth study of a specific discipline topic and/or the critical analysis of

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contemporary issues in the discipline. They are targeted to self-selected students with an interest in the subject matter and involve active participation. The course delivery incorporates an experiential component of no less than 30 percent but not to exceed 70 percent (to be determined by the disciplines). This experiential component may include field studies, interdisciplinary learning, and/or the practical application of discipline-related concepts, theories, principles and methods with a specific focus. All courses require an orientation session to deliver academic and experiential information (syllabus, academic requirements, field preparation, logistics, etc.)

Selected Topics

PHYSI 1820 - 1-3 Credits

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college course schedule. This course may be taken four times for credit as long as different topics are selected. (1 to 3 lecture hours)

Independent Study

PHYSI 1840 - 1-4 Credits

Exploration and analysis of topics within the discipline to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required (1 to 4 lecture hours)

Physics for Science and Engineering I

PHYSI 2111 - 5 Credits

Calculus-based study of classical linear and rotational kinematics and dynamics, including work, energy, impulse, momentum, collisions, gravitation, periodic motion, and wave motion. (Students without a strong high school physics background are encouraged to complete PHYSI-1201 before enrolling in this course.) Prerequisite: Mathematics 2231 (or college equivalent) with a grade of C or better (4 lecture hours, 3 lab hours)

Physics for Science and Engineering II

PHYSI 2112 - 5 Credits

Calculus-based study of electrostatics, electric fields, Gauss' Law, capacitance, current, resistance, magnetic forces and fields, electromagnetic induction, AC circuits, Maxwell's equations, electromagnetic waves, geometric optics and physical optics. Prerequisite: Physics 2111 with a C or better (4 lecture hours, 3 lab hours)

Physics for Science and Engineering III

PHYSI 2115 - 4 Credits

Calculus-based study of fluids, thermodynamics, special relativity, introductory quantum mechanics, nuclear physics and particle physics. Prerequisite: Physics 2112 with a grade of C or better (3 lecture hours, 3 lab hours)

Special Project

PHYSI 2800 - 1-3 Credits

Special project courses cover topics not otherwise covered by general education courses and other courses in the discipline, while building on academic knowledge and skills acquired in introductory-level classes. These courses require direct experience and focused reflection in an in-depth study of a specific topic and/or the critical analysis of contemporary issues in the discipline. They are targeted to self-selected students with an interest in the subject matter and involve active participation. The course delivery incorporates an experiential component of no less than 30 percent but not to exceed 70 percent. This experiential component may include field studies, interdisciplinary learning, and/or the practical application of more complex geographic concepts, theories, principles and methods with a specific focus. All courses require an orientation session to deliver academic and experiential information (syllabus, academic requirements, field preparation, logistics, etc.) Prerequisite: At least one course in the discipline or consent of instructor

Advanced Selected Topics

PHYSI 2820 - 1-3 Credits

Advanced exploration and analysis of selected topics with a specific theme indicated by course title listed in college course schedule. This course may be taken four times for credit as long as different topics are selected. Prerequisite: At least one course in the discipline or consent of instructor. (1 to 3 lecture hours)

Advanced Selected Topics II

PHYSI 2827 - 1 Credits

Advanced exploration and analysis of selected topics with a specific theme indicated by the course title listed in the college course schedule. This course may be taken four times for credit as long as different topics are selected. At least one course in Physics or consent of instructor (1 lecture hour)

Experimental/Pilot Class

PHYSI 2840 - 1-6 Credits

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Exploration and analysis of topics within the discipline. This course is used to pilot a proposal for a permanent discipline course. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required

Internship (Career & Technical Ed)yCoop Ed/Internship Occup

PHYSI 2860 - 1-4 Credits

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship Advanced (Career & Tech Ed)

PHYSI 2865 - 1-4 Credits

Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship (Transfer)

PHYSI 2870 - 1-4 Credits

Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship - Advanced (Transfer)

PHYSI 2871 - 1-4 Credits

Continuation of Internship (Transfer). Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.