PHYSICS

Associate Degree for Transfer℠

I. PHYSICS FOR TRANSFER (AS-T)

Physics is the study of the relationship between matter and energy in the universe. The AS-T in Physics for Transfer degree is designed to prepare students to transfer to a California State University (CSU) with the intent of earning a baccalaureate degree in physics. The curriculum is designed to provide students working toward a bachelor's degree a well-balanced, lower division program by emphasizing fundamental concepts and problem solving. The degree requirements are typical of what baccalaureate institutions require.

The following is required for the AS-T in Physics for Transfer degree:

1. Minimum of 60 semester or 90 quarter CSU-transferable units.
2. Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework.
3. Minimum of 18 semester or 27 quarter units in the major.
4. A grade of "C" or better in all courses required for the major.
5. Certified completion of the Intersegmental General Education Transfer Curriculum (IGETC-CSU); see Degree Requirements and Transfer Information section for more information.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions.
- Evaluate integrals using appropriate techniques (such as: by parts, trig substitution, etc.)
- Apply Green's, Stokes' and Gauss' Theorems.
- Use conservation of energy and conservation of momentum concepts.
- Use Maxwell's Equations to solve problems in electricity and magnetism.
- Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principles, and quantum mechanics in one and three dimensions, statistical physics and nuclear physics.

Associate in Science Degree Requirements:

Course	*Title*	*Units*
MATH 180	Analytic Geometry and Calculus I	5
MATH 280	Analytic Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
	Total Units for Major (7 units may be double-counted with GE)	28
	Total Units for IGETC-CSU	37
	Total Transferable Elective Units	2
	Total Units for Degree	60

Please note: SDSU accepts this degree for students transferring into the B.S. Physics (General) or B.S. Physics (Modern Optics Emphasis).

II. PHYSICS

Physics is the study of the relationship between matter and energy in the universe. The curriculum is designed to provide students working toward a bachelor's degree a well-balanced, lower division program by emphasizing fundamental concepts and problem solving. The degree requirements are typical of what four-year colleges and universities require; see www.assist.org for requirements of specific transfer institution.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Predict periodic trends in ionization energy, atomic size, electron affinity and acid-base properties.
- Calculate changes in enthalpy, entropy, and free energy for chemical reactions, phase changes, solution processes, and elementary molecular processes using tables of thermodynamic data.
- Write systematic names for carbon based compounds.
- Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions.
- Evaluate integrals using appropriate techniques (such as: by parts, trig substitution, etc.)
- Apply Green's, Stokes' and Gauss' Theorems.
- Use conservation of energy and conservation of momentum concepts.
- Use Maxwell's Equations to solve problems in electricity and magnetism.
- Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principle, quantum mechanics in one and three dimensions, statistical physics and nuclear physics.

CAREER OPPORTUNITIES

Air Pollution Operating Specialist
*Astronomer
*Astrophysicist
*Biomedical Engineer
*Biophysicist
*Chemical Physicist
Consumer Safety Officer
*Cryogenic Engineer
Electrician
Food and Drug Inspector
*Fusion Engineer
*Geophysicist
Government Claims Representative
Health Program Representative
*High Energy Physicist
Laser Specialist
*Metallurgist
*Meteorologist
*Nuclear Physicist
*Physical Oceanographer
*Physicist
*Plasma Physicist
Quality Control Technician
*Quantum Physicist
*Seismologist

*Bachelor Degree or higher required

Associate in Science Degree Requirements:

Course	*Title*	*Units*
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
MATH 180	Analytical Geometry and Calculus I	5
MATH 280	Analytical Geometry and Calculus II	4
MATH 281	Multivariable Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
	Total Required	38
	Plus General Education Requirements	