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 California State University General Education (CSU GE) Breadth pattern or the Intersegmental General Education Transfer Curriculum (IGETC) pattern; see Degree Requirements and Transfer Information section for more information. In order to graduate without taking more than 60 units, the IGETC-CSU General Education pattern must be followed.

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 180</td>
<td>Analytic Geometry and Calculus I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 280</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 281</td>
<td>Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYC 190</td>
<td>Mechanics and Heat</td>
<td>5</td>
</tr>
<tr>
<td>PHYC 200</td>
<td>Electricity and Magnetism</td>
<td>5</td>
</tr>
<tr>
<td>PHYC 210</td>
<td>Wave Motion and Modern Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

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