PHYSICS—ASSOCIATE OF SCIENCE DEGREE

PROGRAM DESCRIPTION

Physics is the natural science involving a general analysis of nature, conducted in order to understand how the universe behaves. It involves the study of matter and its motion through space and time, along with related concepts such as energy and force. Physics overlaps with many interdisciplinary areas such as astronomy, biology, chemistry, and geology. Physics also makes significant contributions through advances in new technologies that arise from theoretical breakthroughs. Research in physics includes the following specialty areas: condensed matter physics; solid-state physics; atomic, molecular, and optical physics; particle physics; astrophysics; geophysics and biophysics. Some positions for which four-year graduates in physics are qualified are in research, teaching, engineering, medicine, and industry.

The Associate in Science degree in Physics for Transfer provides a clearly articulated curricular track for students who wish to transfer to baccalaureate degree programs at a California State University (CSU) campus. For detailed requirements for individual four-year institutions, students should contact the transfer institution and/or meet with a counselor for specific transfer course requirements in their major.

FOR MORE INFORMATION, CONTACT: Laura Fatuzzo at 831-770-7017, lfatuzzo@hartnell.edu, N 10

PROGRAM OUTCOMES

Upon successful completion of the AS in Physics for Transfer Program, a student should be able to:

- Apply fundamental physics laws, principles and widely accepted theories.
- Demonstrate proficiency in solving problems that are appropriate to first-year-university students of calculus-level physics courses.
- Collect and analyze data effectively using basic laboratory equipment, and present results and conclusions in formally structured laboratory reports.

California Community Colleges are now offering associate degrees for transfer to the CSU. These may include Associate in Arts (AA-T) or Associate in Science (AS-T) degrees. These degrees are designed to provide a clear pathway to a CSU major and baccalaureate degree. California Community College students who are awarded an AA-T or AS-T degree are guaranteed admission with junior standing somewhere in the CSU system and given priority admission consideration to their local CSU campus or to a program that is deemed similar to their community college major. This priority does not guarantee admission to specific majors or campuses.

Students who have been awarded an AA-T or AS-T are able to complete their remaining requirements for the 120-unit baccalaureate degree within 60 semester or 90 quarter units.

In order to earn this degree, students must complete:

- 60 CSU-transferable semester units.
- Minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum of 2.0 is required for admission, some majors may require a higher GPA. Please consult with a counselor for more information.
- Completion of a minimum of 18 semester units in an "AA-T" or "AS-T" major as detailed in the degree section of the catalog. All courses in the major must be completed with a grade of "C" or better or a "P" if the course is taken on a "pass/no pass" basis (title 5 § 55063).
- Certified completion of the California State University General Education-Breadth pattern (CSU GE Breadth) (see page 92 of the Hartnell College Catalog for more information); OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern (see page 110 of the Hartnell College Catalog for more information).

No additional local Associate degree requirements are applied.

**RECOMMENDED ELECTIVES [Select from list; none required]**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM-1A</td>
<td>General Chemistry I</td>
<td>5.0</td>
</tr>
<tr>
<td>CHM-1B</td>
<td>General Chemistry II</td>
<td>5.0</td>
</tr>
<tr>
<td>CSS-4</td>
<td>Introduction to Scientific Programming</td>
<td>4.0</td>
</tr>
<tr>
<td>MAT-4</td>
<td>Linear Algebra</td>
<td>3.0</td>
</tr>
<tr>
<td>MAT-5</td>
<td>Differential Equations</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**SUBTOTAL UNITS (6)**

Students can double-count required degree courses and courses for General Education

**TRANSFER STUDENTS:** Students planning to transfer to a university should follow the requirements of the four-year university. Information on course equivalencies and major preparation requirements for the University of California (UC) and California State University (CSU) systems are available online at www.assist.org. Please consult with a Hartnell College counselor to review transfer requirements.