ENGINEERING AND PHYSICS - TRACK 2 (AS-T)

(90 credits)

Program Description

Engineers are both practical and scientific: they solve problems by using science to design real-world applications. As a student of engineering, you might investigate issues in a variety of fields including aerospace, computers, construction, or biochemistry. Successful graduates work in a variety of places including pharmaceutical industries, power companies, and academic research institutions.

Engineering careers offer interesting – potentially even groundbreaking – problems and projects. You could invent something new, or improve and refine an idea that already exists.

Have you ever wondered how 3D glasses work, why bees use hexagons to build their hives, why some people have difficulty floating in water, or how prairie dogs can build underground tunnels that don't collapse? Physics provide the backdrop to our everyday lives and actions. By studying Physics at SPSCC, you will learn more about the way the world works through interactive lectures, quality lab exercises, and in-class demonstrations.

The Associate in Science-Transfer is designed for persons interested in transferring to a four-year college or university to study science or engineering. Students who successfully complete degree requirements and elective courses recommended for their specific area of study will transfer to many four-year degree programs with junior standing. Compared to the Associate in Arts Degree, this degree delays some general education distribution credits until the junior or senior year in order to make room in the transfer degree for required freshman and sophomore-level science sequences. AS-T Track 2 focuses on computer science, engineering, physics and atmospheric sciences.

Career Opportunities

- Manufacturing Engineers
- Architectural and Engineering Manager
- Physicist
- Physics Teacher, Postsecondary
- Photonics Engineer

Outcomes

South Puget Sound Community College believes that all students need to develop a broad range of abilities that will not only make them more effective in their professional pursuits but will enhance their capacity to relate well to others in their daily lives.

General education introduces students to the content and methodology of the major areas of knowledge – communication, the humanities and fine arts, the natural sciences, mathematics and the social sciences – and helps them develop the intellectual skills that will make them more effective life-long learners. The College's general education program is intended to meet the transfer requirements of the four-year colleges and universities as outlined in the Intercollegiate Relations Commission Handbook.

The SPSCC college-wide abilities are embedded into each program:

- Effective Communication
- Information Literacy
- Analytical Reasoning
- Multicultural Awareness
- Social Responsibility

Courses by Quarter

In planning this degree students need to work closely with their faculty advisor and the transfer institution so that the science credits within the degree create a seamless passage to the transfer institution. Although the Associate in Science-Transfer Degree transfers to four-year colleges and universities in Washington State, it may not meet specific department requirements.

To earn an Associate in Science-Transfer (Track 2) degree all courses taken must be:

- At college level (numbered 100 or above).
- A minimum of 85 of the 90 credits required for the degree must be from the General Education Requirements for the Associate in Arts & Science – Direct Transfer Agreement. Copies of the list are available online at spscc.edu/programs/general-ed-requirements.
- A class can only count once toward General Education requirements. For example, IIS 125 will satisfy either HUMANITIES or SOCIAL SCIENCE course requirements, but not both.
- A maximum of 5 credits in performance/skills courses may be applied to the humanities distribution requirement.
- A cumulative grade point average of 2.0 or above in all college-level courses required.
- Although this degree is a general transfer degree, South Puget Sound Community College has provided pathways and associated recommended courses for ease of student selection based upon a student's career interest. Please review the pathway maps for recommended courses and course sequences.
- A minimum of 90 credits is required, meeting the distribution in the table below.

Courses by Quarter

Code	Title	Credits
Quarter 1		
Transition Studies		
Quarter 2		
AMATH 097	Corequisite Intermediate Algebra	7
ENGL 090	Integrated Reading and Writing I	5
or ENGL 095	Integrated Reading and Writing II	
CCS 101	Pathways to Success	3
Quarter 3		
AMATH 141	Corequisite Precalculus I [1]	8
ENGL 098	Transitional English Composition	5

or ENGL& 101	English Composition I	
CHEM& 139	General Chemistry Prep	5
Quarter 4		
MATH& 142	Precalculus II	5
CHEM& 161	General Chemistry w/Lab I [2]	5
Humanities Distribution Course (https://catalog.spscc.edu/distribution-requirements/aa-as-dt-degrees/)		5
Quarter 5		
MATH& 151	Calculus I	5
Diversity Distribution Course (https://catalog.spscc.edu/distribution-requirements/aa-as-dt-degrees/)		5
General Elective Course from Any Distribution (https://catalog.spscc.edu/distribution-requirements/aa-as-dt-degrees/)		1-6
Quarter 6		
MATH& 152	Calculus II	5
PHYS& 221	Engineering Physics I w/Lab [3]	5
General Elective Course from Any Distribution (https://catalog.spscc.edu/distribution-requirements/aa-as-dt-degrees/)		1-5
Quarter 7		
MATH& 146	Introduction to Statistics	5
or MATH& 153	Calculus III	
PHYS& 222	Engineering Physics II w/Lab	5
General Elective Course from Any Distribution (https://catalog.spscc.edu/distribution-requirements/aa-as-dt-degrees/)		5
Quarter 8		
PHYS& 223	Engineering Physics III w/Lab	5
Social Science Distribution Course (https://catalog.spscc.edu/distribution-requirements/aa-as-dt-degrees/)		5
**Students are required to complete a minimum of 90 credits to attain the AS-2 degree. Students should work with their career and educational planner to plan out any additional electives or remaining credits.		

[1] Some students may place directly into MATH& 141
[2] CHEM&161 is offered in Fall and Winter quarters.
[3] PHYS& 221/222/223 sequence starts in Fall and Winter

Associate in Science Track 2 – Engineering & Physics Pathway Map
Associate in Science Track 2
90 Credits

Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 5	Qtr. 6	Qtr. 7	Qtr. 8
Transition Studies	AMATH 097 (7cr) Corequisite Intermediate Algebra Includes ability to complete: MATH 096 MATH 097	AMATH 141 (5cr) Corequisite Precalculus I Includes ability to complete: MATH 099 *MATH& 141 *Some students may place directly into MATH& 141	MATH& 142 (5cr) Precalculus II	MATH& 151 (5cr) Calculus I	MATH& 152 (5cr) Calculus II	Choose One: (5cr) (Quantitative, required) MATH& 146 Introduction to Statistics MATH& 153 Calculus III	Choose One: (5cr) (Social Science, recommended) ANTH& 104 World Prehistory BUS& 101 Introduction to Business HIST& 128 World Civilization III POLS& 202 American Government PSYC 116 Psychology of Human Relations: Diversity
	ENGL 090 (5cr) Integrated Reading and Writing I ENGL 095 (5cr) Integrated Reading and Writing II	ENGL 098 (5cr) Transitional English Composition ENGL& 101 (5cr) English Composition I	Choose One: (5cr) (Humanities, recommended) Language any Gen. Ed. Course ENGL& 111 Introduction to Literature PHIL& 120 Symbolic Logic DRMA 271 Theater production practicum: non-musical	Choose One: (5cr) (Humanities or Social Science/Diversity, recommended) ANTH& 206 Cultural Anthropology: Diversity CMST 240 Intercultural Communication: Diversity HUM 250 American Ethnic Studies: Diversity SOC& 201 Social Problems: Diversity SOC 235 Sociology of Gender: Diversity	PHYS& 221 (5cr) Engineering Physics I w/Lab PHYS& 221/222/223 sequence starts in Fall and Winter	PHYS& 222 (5cr) Engineering Physics II w/Lab	PHYS& 223 (5cr) Engineering Physics III w/Lab
	CCS 101 (3cr) Pathways to Success	CHEM& 139 (5cr) General Chemistry Prep	CHEM& 161 (5cr) General Chemistry w/Lab I CHEM&161 is offered in Fall and Winter quarters.	Choose One: (1-6cr) (Electives, recommended) ASTR& 100 (5cr) Survey of Astronomy BIOL& 211 (5cr) Majors Cellular BIOL/CHEM/PHYS 214 (2cr) Undergraduate Research I ENVS& 100 Survey of Environmental Science CHEM& 162 (5cr) General Chemistry w/ Lab II CS 142 (5cr) Object-Oriented Programming I MATH 214 (1-6cr) Undergraduate Research I OCEA& 101 (5cr) Introduction to Oceanography w/Lab	Choose One: (1-5cr) (Electives, recommended) ASTR& 115 (5cr) Stars, Galaxies, and Cosmos BIOL/CHEM/PHYS 215 (1cr) Undergraduate Research II CHEM& 163 (5cr) General Chemistry w/ Lab III CS 143 (5cr) Object-Oriented Programming II ENGR& 214 (5cr) Statics ENVS 102 (5cr) Climate Change & Society MATH 205 (5cr) Linear Algebra (winter only)	Choose One: (2-5cr) (Electives, recommended) BIOL/CHEM/PHYS 216 (2cr) Undergraduate Research III ENGR 203 (5cr) Mechanics of Materials Laboratory ENGR 204 (2cr) Mechanics of Materials ENGR& 215 (5cr) Dynamics ENVS 203 (5cr) Climate and Energy Solutions	Choose One: (2-5cr) (Electives, recommended– if credits needed to meet AS2 requirements) BOT 101 (5cr) Introduction to Botany ENGL& 102 (5cr) Composition II MATH 238 (5cr) Differential Equations (spring only) MATH& 254 (5cr) Calculus IV (fall only) Any PE course (2-5cr)

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Pathway Maps

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