

BACHELOR OF SCIENCE, MAJOR IN PHYSICS/ENGINEERING DUAL DEGREE

Code	Title	Hours
Bachelor of Science, Major in Physics/Engineering Dual Degree		
Core Curriculum (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/)		
Component Area I (Communication)		6
Component Area II (Mathematics) ¹		3
Component Area III (Life and Physical Science) ²		8
Component Area IV (Language, Philosophy, and Culture)		3
Component Area V (Creative Arts)		3
Component Area VI (U.S. History)		6
Component Area VII (Political Science/Government)		6
Component Area VIII (Social and Behavioral Sciences)		3
Component Area IX (Component Area Option)		4
Degree Specific Requirements		
CHEM 1411	General Chemistry I ²	4
CHEM 1412	General Chemistry II ²	4
COSC 1436	Programming Fundamentals I	4
ENGL 3330	Intro to Technical Writing	3
ETDD 1361	Engineering Graphics	3
Advanced Elective		3
Major Core		
PHYS 1401	Physics Boot Camp	4
PHYS 1411	Introduction To Physics I	4
PHYS 1422	Introduction To Physics II	4
PHYS 3370 & PHYS 4110	Intro To Theoretical Physics and Adv Undergrad Laboratory I	4
PHYS 3395 & PHYS 3115	Electronics & Circuit Analysis and Electronic & Circuit Anlys Lab	4
PHYS 3391 & PHYS 3111	Modern Physics I and Modern Physics Laboratory I	4
Major		
PHYS (Advanced) (see list below)		6-8
MATH 1420	Calculus I ¹	4
MATH 1430	Calculus II	4
MATH 2440	Calculus III	4
MATH 3376	Differential Equations	3
MATH 3377	Intro to Linear Alg & Matrics	3
Total Hours		99-101

¹ MATH 1420 satisfies the Core Curriculum requirement for Component Area II (Mathematics), one semester credit hour of Component Area IX (Component Area Option), and the Degree Specific requirement.

² CHEM 1411 and CHEM 1412 satisfy the Core Curriculum requirement for Component Area III (Life and Physical Science)

Note: Fourth Year at university with recognized accredited degree program.

Code	Title	Hours
Advanced PHYS Electives		
PHYS 4333 & PHYS 4113	Light And Optics and Light And Optics	4
PHYS 3360	Statics And Dynamics	3

PHYS 4366	Intro Quantum Mechanics	3
PHYS 4368	Electricity And Magnetism	3
PHYS 4371	Thermodynamcs & Statistcl Mech	3
PHYS 4370	Classical Mechanics	3

For the Dual Degree Plan the student completes three years in Physics at Sam Houston State University and the curriculum in an engineering field at a university with a recognized accredited degree program in the chosen engineering field.

After successfully completing this program, the student receives two Bachelor of Science degrees:

- one in Physics from Sam Houston State University
- one in an engineering specialty from the university with the recognized accredited engineering degree program.

The applicable engineering specialties are:

- aerospace
- agriculture
- chemical
- civil
- electrical
- industrial
- mechanical
- nuclear
- petroleum
- radiation protection engineering

For the chemical engineering option, a Bachelor of Science in Chemistry would be received from Sam Houston State University.

For more information on this program contact:

Dual Degree Plan Coordinator
Department of Physics
Sam Houston State University
Huntsville, Texas 77341-2267

Students in either of these programs should consult with the Physics/Engineering advisor to adjust the recommended programs to meet the requirements of the particular field of engineering at the terminal university.

To contact the Department of Physics, call (936) 294-1601; FAX: (936) 294-1585; or visit Department of Physics (<http://www.shsu.edu/academics/physics/>).

First Year

Fall	Hours	Spring	Hours
CHEM 1411 ¹		4 CHEM 1412 ¹	4
ENGL 1301 ²		3 ENGL 1302 ²	3
HIST 1301 ³		3 HIST 1302 ³	3
MATH 1420 ⁴		4 MATH 1430 ⁴	4
PHYS 1401		4 PHYS 1411	4
		18	18

Second Year

Fall	Hours	Spring	Hours
Component Area IV (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv)		3 Component Area IX (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix)	3
ETDD 1361		3 COSC 1436	4
MATH 2440		4 ENGL 3330	3
PHYS 1422		4 PHYS 3370 & PHYS 4110	4

POLS 2305 ⁵		3 POLS 2306 ⁵	3
		17	17
Third Year			
Fall	Hours	Spring	Hours
Component Area VIII (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii)		3 Component Area V (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav)	3
Elective Advanced		3 MATH 3377	3
PHYS 3391		3 PHYS 3395	3
PHYS 3111		1 PHYS 3115	1
PHYS Advanced (see, list below)		3-4 PHYS Advanced (see, list below)	3-4
MATH 3376		3	
		16-17	13-14
Fourth Year			
Fall	Hours	Spring	Hours
University with Accredited Degree Program		0 University with Accredited Degree Program	0
		0	0

Total Hours: 99-101

- 1 Satisfies Core Curriculum requirement for Component Area III (Life and Physical Science).
- 2 Satisfies Core Curriculum requirement for Component Area I (Communications).
- 3 Satisfies Core Curriculum requirement for Component Area VI (U.S. History).
- 4 Satisfies Core Curriculum requirement for Component Area II (Mathematics) and one hour of Component Area IX (Component Area Option).
- 5 Satisfies Core Curriculum requirement for Component Area VII (Political Science/Government).

Note: Fourth Year at university with recognized accredited degree program.

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- electrical
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- mechanical
- nuclear

- petroleum
- radiation protection engineering

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The Texas Higher Education Coordinating Board (THECB) marketable skills initiative is part of the state's **60x30TX plan** and was designed to help students articulate their skills to employers. Marketable skills are those skills valued by employers and/or graduate programs that can be applied in a variety of work or education settings and may include interpersonal, cognitive, and applied skill areas.

The BS in Physics/Engineering Dual Degree is designed to provide graduates with the following marketable skills:

- Ability to creatively solve real-world problems.
- Sophisticated understanding of applied mathematics.
- Capacity to analyze and interpret complex data.
- Quantitative understanding of mechanical, electrical, and thermal systems.
- Model complex interactions with computer programming and technology.