While SHSU does not offer degrees in Engineering, the Department of Physics and Astronomy does provide several options for Pre-Engineering. Physics and Engineering go together very well, because so much of Engineering Design is built upon the underlying foundation of Physics.

Students on the Civil Pre-Engineering plan complete 77 credit hours in residence at Sam Houston State University, focusing on the Core Curriculum and developing a firm foundation in math and the hard sciences. They then transfer to a partner institution to complete remaining requirements for award of a degree in Civil Engineering. Our academic articulation agreement with the University of Texas at Tyler (UT-Tyler) makes the transfer of matching credit a seamless process and guarantees acceptance for students meeting GPA requirements. However, students are also free to continue their study at any institution with an accredited Engineering program.

For students considering Pre-Engineering vs. Engineering Technology, it is very important to understand the similarities and differences between these programs. Engineering tracks include significantly more Math (especially Calculus) than Technology tracks do, leading to very different careers. The Accreditation Board for Engineering and Technology (ABET) says that Engineering programs often focus on theory and conceptual design, while Technology programs usually focus on application and implementation. Engineers often do work involving original research and development, and many continue on to Masters or Doctoral programs in Engineering. Technologists are most likely to work in construction, manufacturing, product design, testing, or technical services and sales. Students interested in Engineering are supervised by the Department of Physics and Astronomy. Students interested in Technology are supervised by the Department of Engineering Technology.
Students may also wish to consider the Physics and Engineering Dual Degree, or "3+2" program, where students earn Bachelors Degrees in both Physics and Engineering. This starts with three years at SHSU, completing the Core Curriculum, the Calculus and Physics introductory sequence, and a portion of the upper division Physics Curriculum. Students then transfer to UT Tyler (either the main campus or the Houston Engineering Center) or apply for acceptance to any accredited Engineering program of their choice for the last two years of degree work. After completion of the Engineering Degree, credits are retroactively transferred back to SHSU so that the Physics Degree can be awarded simultaneously.

All students interested in Physics or Pre-Engineering enroll in the Physics Bootcamp (PHYS 1401) during their first semester on campus. This ensures that students master the math skills required during the next two years and helps them understand what those skills are good for in Physics and Engineering. It develops confidence, teamwork, camaraderie, and a sense of belonging in the department. A weekly group-based problem-solving practice session is integrated. The Bootcamp is typically offered each Fall and Spring term.