BACHELOR OF SCIENCE IN
CHEMICAL ENGINEERING

WHAT IS CHEMICAL ENGINEERING?

Chemical engineering, broadly speaking, involves the application of basic sciences (chemistry, biology, physics) and mathematics for creating and processing products for the benefit of mankind, in the most sustainable and environmentally friendly manner possible. Typically, chemical engineers are responsible for taking raw materials or synthesized chemicals and converting/processing them into more useful or secondary products. However, they also play an increasingly prominent role in the development of sustainable practices and environmental pollution remediation, such as carbon capture and sequestration.

CAREERS IN CHEMICAL ENGINEERING

Graduates from the Chemical Engineering program at TTU are sought after in a wide range of industrial sectors such as energy and fuel production, fine chemical production, pharmaceuticals, consumer products, construction, food and biotechnology. They enter positions such as process engineer, field engineer, systems engineer, or project manager. A good number of our graduates go on to pursue graduate studies in PHD programs in Chemical and Nuclear Engineering.

Many of our students are recruited to top companies such as Valero, Exxon, Chevron, Conoco Phillips, Johnson & Johnson, Mars, both in the State of Texas and across the nation. Our full-time job placement rate at graduation was 88%, with median starting salary of $92,000. One-third of our graduates started on salaries over $100k!

WHY STUDY CHEMICAL ENGINEERING AT TEXAS TECH UNIVERSITY?

ACADEMICS

The department of chemical engineering at Texas Tech University is one of the top-ranked amongst public institutions, and provides students with a truly rounded, hands-on experience, thanks to state-of-the-art facilities in our recently renovated Valero teaching laboratory, and the Morrow Pilot Plant. We boast small class discussion sessions in our core classes, taught by faculty members with a diverse range of expertise. We also offer accelerated MS programs (4+1) in Chemical Engineering and Bioengineering. Texas Tech University is in Lubbock, West Texas, known for its friendly and welcoming people, and conveniently located near the Permian Basin – the nation's oil hub.

Learn more about our department: https://www.depts.ttu.edu/che/department/index.php

RESEARCH OPPORTUNITIES

Undergraduate students at TTU have the unique opportunity to engage in cutting-edge research to complement their core studies. We offer students the option to gain course credit or paid research experiences, working in a variety of fields such as reactor kinetics, catalysis, electro-chemistry, machine learning and AI applications, molecular dynamics and computational thermodynamics, energy storage, biomedical device engineering, and microfluidics, to name a few. Research can either be experimental lab-based, or computational.

Learn more about research here: https://www.depts.ttu.edu/che/research/index.php

SCHOLARSHIPS

The department of chemical engineering reviews scholarship applications annually and typically awards >$150,000 per year through our accounts made possible by generous donations and endowments. Our scholarships cover both merit-based and financial need, and any scholarships we offer are in addition to any college or university scholarships!

Learn more about TTU scholarships here: https://www.depts.ttu.edu/scholarships/
Estimate tuition: Student Business Services Tuition Estimator

STUDENT ORGANIZATIONS

Students in chemical engineering are strongly encouraged to join the student chapter of the American Institute of Chemical Engineers (AIChE), and its subgroup, the ChemE Car Team. Members of these groups work on a variety of projects, such as volunteering events, organizing networking events with corporate sponsors, and conference attendance. Members of this group also host social events, so it is a great way to meet other students!

Learn more about the TTU chapter here: https://www.aichettu.com/

CHE FAST FACTS

331	Undergraduate students, 86 graduate students
18	Faculty members (18:1 student-faculty ratio)
$92k	Median starting salary
$4000	Average departmental scholarship

DEPARTMENT OF
CHEMICAL ENGINEERING
TEXAS TECH
Whitacre College of Engineering

CHEMICAL ENGINEERING CURRICULUM 2026 - 2027

The following plan contains all the general education, foundational engineering and core chemical engineering requirements for your BS Chemical Engineering degree (total = 129 credit hours). It is likely that you will have some transfer credits from high school and/or take some of the general education courses (e.g. ENGL, HIST, POLS) out of sequence compared to the table below, so refer to this as a guide only. Check here for TTU's credit transfer webpage: https://www.depts.ttu.edu/testing/uce.php. Always be sure to consult with the academic advisor about completion of the general education requirements.

Freshman Year (Foundational Engineering Core)	
Fall Semester (15 hrs)	Spring Semester (17 hrs)
ENGR-1110 Engineering Seminar	ENGR-1340 Intro. Engineering Design
ENGR-1330 Comp Thinking/Data Sci	ENGR-2392 Engineering Ethics
MATH-1451 Calculus I	MATH-1452 Calculus II
CHEM -1307/1107 Principles of Chemistry I	PHYS-1408 Principles of Physics I
ENGL-1301 Essentials of College Rhetoric	ENGL-1302 Advanced College Rhetoric
Sophomore Year	
Fall Semester (18 hrs)	Spring Semester (16 hrs)
CHE-2310 Intro. Chemical Processes	**CHE-2321 Chemical Engineering Thermodynamics I**
MATH-2450 Calculus III	**CHE-3315 Fluid Mechanics**
CHEM-1308/1108 Principles of Chemistry II	**CHE-2306 Exposition of Technical Information**
PHYS-2401 Principles of Physics II	MATH-3350 Advanced Math for Engineers I
POLS-1301 American Government*	CHEM-3305/3105 Organic Chemistry I
Junior Year	
Fall Semester (16 hrs)	Spring Semester (14 hrs)
CHE-3322 Chemical Engineering Thermodynamics II	**CHE-3323 Chemical Reaction Engineering**
CHE-3326 Heat Transfer	**CHE-3341 Mass Transfer Operations**
CHE-3305 Computations/Simulations in Chem Eng.	**CHE-3232 Transport Lab**
CHE-4372 Engineering Experimentation	**CHE-3330 Engineering Material Science**
CHEM-43xx/41xx Chemistry Elective*	IE-2324 Engineering Economic Analysis
Senior Year	
Fall Semester (16 hrs)	Spring Semester (17 hrs)
CHE-4353 Process Control	**CHE-4356 Process Safety**
CHE-4232 Unit Operations Lab	**CHE-4202 Design II**
CHE-4201 Design I	CHE-43xx Chemical Engineering Elective*
CHE-43xx Chemical Engineering Elective*	CHEM-43xx Chemistry Elective*
POLS 2306 Texas Politics and Topics*	HIST-3xxx History Elective*
HIST-2300 History of the US to 1877*	Creative Arts Elective (also Multicultural)*

*Some of these courses may be offered in the summer or can be taken in other semesters.

The courses in bold are all the core Chemical Engineering courses that are only guaranteed to be offered in the semesters shown.

The description for each course can be found by typing the course code into the search box on the main TTU catalog here: https://catalog.ttu.edu/

FOR MORE INFORMATION

Contact: Dr. Jeremy Marston - jeremy.marston@ttu.edu - 806.834.7012

Website: https://www.depts.ttu.edu/che/department/index.php

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