Preparing for a Degree in Engineering

Suggested Courses for High School Students

**WHAT COURSES DO I TAKE IN HIGH SCHOOL IF I WANT TO BE AN ENGINEER?**

Engineering coursework at Texas Tech University builds on a strong academic foundation of English, Mathematics, Science, Social Studies, and other disciplines in high schools.

Students that have the most success at the university level are often the ones that planned ahead and challenged themselves academically.

These students take Advanced Placement (AP), International Baccalaureate (IB), or dual-credit courses that allow them to earn college credit in high school.

Consider your electives and take advantage of engineering courses if they are available at your school.

Join a science, technology, engineering, mathematics (STEM) club and participate in STEM camps, activities, competitions, or other programs.

The guide at the right provides a suggested course flow that will help you to build a strong academic foundation in high school and prepare you for your time at Texas Tech as a Red Raider!
Preparing for a Degree in Engineering
How Engineers Shape the World

Department of Chemical Engineering
Bachelor of Science in Chemical Engineering
From pharmaceuticals that can improve lives to green chemistry that may help remove hazardous substances, chemical engineers transform the knowledge of chemistry into powerful materials for the betterment of society.

Department of Civil, Environmental & Construction Engineering
Bachelor of Science in Civil Engineering
Bachelor of Science in Construction Engineering
Bachelor of Science in Environmental Engineering
From designing modern skyscrapers, roadways, and manufacturing processes to ensuring clean drinking water, civil, environmental, and construction engineers affect quality of life and public safety.

Department of Computer Science
Bachelor of Science in Computer Science
Computer scientists design and build software and create efficient solutions to real-world problems in fields such as robotics, computer-enhanced vision, and digital forensics.

Department of Electrical & Computer Engineering
Bachelor of Science in Computer Engineering
Bachelor of Science in Electrical Engineering
Electrical and computer engineers work with electronics, telecommunications, and integrated circuits – from generating electrical power for the national grid, to novel integrated circuits for wireless communications, to designing the smallest computer chip in your cell phone.

Department of Industrial Engineering
Bachelor of Science in Industrial Engineering
From improving patient flow at a hospital to consulting with Fortune 500 companies on management strategies, manufacturing, ergonomics, and logistics, industrial engineers design and operate systems, providing high-quality products and services in safe and cost-effective ways.

Department of Mechanical Engineering
Bachelor of Science in Mechanical Engineering
Mechanical engineers design, manufacture, and test mechanical devices from submarines to tiny nanobot devices and artificial organs.

Bob L. Herd Department of Petroleum Engineering
Bachelor of Science in Petroleum Engineering
Petroleum engineers literally fuel the world – finding and producing safe, clean and affordable oil and gas supplies – all while safeguarding the environment.

polymers and materials, nano-technology, energetic nano-materials, biotechnology and biomedical engineering, biomolecular modeling, alternative new generation biofuels

design of buildings, shelters and bridges; windstorm damage mitigation; renewable wind energy systems; wastewater treatment, hazardous waste treatment, flooding, water resources management, construction management, manufacturing processes, HVAC system design

programming languages, distributed computing and parallel processing, artificial intelligence techniques, intelligent systems, robotics, software engineering, distributed databases

energetics, biomechanics, superhard materials, nanomechanics, computational and environmental fluid mechanics, fuel cells and alternative fuels in automotive design, MEMs

core analysis; pressure, volume, temperature (PVT) analysis; natural gas engineering; artificial lift and system analysis; reservoir engineering, hydraulic fracking, fluidless fracking, surface operations and facilities design

From pharmaceuticals that can improve lives to green chemistry that may help remove hazardous substances, chemical engineers transform the knowledge of chemistry into powerful materials for the betterment of society.

Petroleum engineers literally fuel the world – finding and producing safe, clean and affordable oil and gas supplies – all while safeguarding the environment.