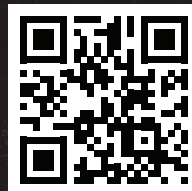




TEXAS TECH UNIVERSITY

Edward E. Whitacre Jr.
College of Engineering



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!



English I



English II



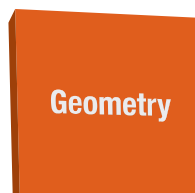
English III



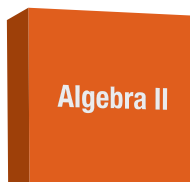
English IV

English/Language Arts

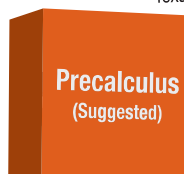
Four years of English and Language Arts credit are recommended.



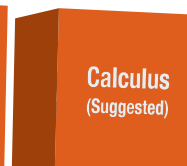
Geometry



Algebra II



Precalculus
(Suggested)



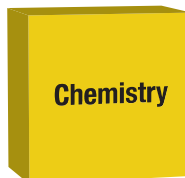
Calculus
(Suggested)

Mathematics

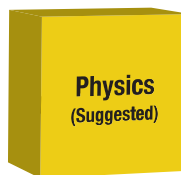
Calculus is an essential part of the engineering curriculum at Texas Tech. Take as many math courses as possible.



Biology



Chemistry



Physics
(Suggested)



Science
Elective
(Engineering
Suggested)

Sciences

Biology, Chemistry, and Physics are essential to the work of an engineer. Take engineering courses as a science elective if they are offered at your school.



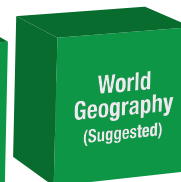
United States
History



United States
Government



World
History
(Suggested)



World
Geography
(Suggested)

Social Studies

In a global workplace, a knowledge of history and geography can make a big difference for an engineer.



Foreign
Language I



Foreign
Language II

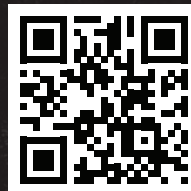
Foreign Language

Knowledge of a foreign language could be helpful in a study abroad experience, or could help you get the right job after your time at Texas Tech.



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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.

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



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.

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



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.

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



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.

pulsed power systems, optoelectronics, computer vision and image processing, energy and power systems, medical microelectronics, embedded systems, wireless communications, sustainable energy systems



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.

biomechanics, safety, nanomaterials, environmentally conscious manufacturing, management of technology and complex organizations, operations research



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.

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



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.

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