

Edward E. Whitacre Jr. College of Engineering



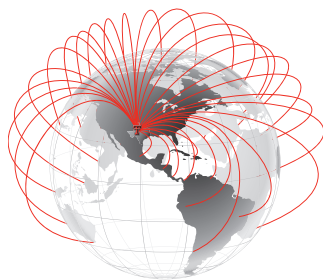
The College ▼

The Whitacre College of Engineering has educated engineers to meet the technological needs of Texas, the nation and the world since 1925.

Home to seven departments, the college offers 12 bachelor's, 13 master's and nine doctoral degrees as well as three graduate certificate programs.

International Experience ▼

A **first for a state school engineering program**, and in response to industry's requests, all undergraduate engineering students at Texas Tech are now required to have an international experience before graduation.



The Whitacre College of Engineering is committed to providing our students with **quality international engineering experiences that prepare them to work in a global environment.**

By the Numbers ▼

Founded: **1925**

Enrollments (Fall 2015):

PreEngineering.....	1,136
Undergraduate.....	4,747
Master's.....	443
Doctoral.....	459

Endowed Chairs, Professorships, and Fellowships: **38**

National Academy of Engineering Members: **4**

Research ▼

The college also has a rich history of nationally and internationally recognized research. Research thrusts for the college focus on five areas:

- Energy ▶
- Water ▶
- Engineering in Medicine ▶
- Infrastructure ▶
- Nanotechnology ▶



Research centers and institutes investigate the latest advances in engineering and science, and are national and international leaders in innovation.

- ▶ Center for Nanophotonics
- ▶ Center for Pulsed Power and Power Electronics
- ▶ Center for the Science and Engineering of Cyber Security
- ▶ Multidisciplinary Research Center in Transportation
- ▶ Nano Tech Center
- ▶ National Institute for Engineering Ethics
- ▶ Smart Grid Energy Center
- ▶ Water Resources Center

Areas of Study ▼

Minors, Bachelor's Degrees, Graduate Certificates, Master's Degrees, and Doctoral Degrees

- ▶ Bioengineering
- ▶ Chemical Engineering
- ▶ Civil Engineering
- ▶ Computer Engineering
- ▶ Computer Science
- ▶ Construction Engineering
- ▶ Construction Engineering and Management
- ▶ Cybersecurity for Critical Infrastructure
- ▶ Electrical Engineering
- ▶ Environmental Engineering
- ▶ Healthcare Engineering
- ▶ Industrial Engineering
- ▶ Mechanical Engineering
- ▶ Petroleum Engineering
- ▶ Software Engineering
- ▶ Systems and Engineering Management
- ▶ Wind Science and Engineering

Contacts ▼

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Becoming an Elite College ▼

The Whitacre College of Engineering endeavors to become an **elite college**, educating the best students and transforming the world with revolutionary research and innovations.

To meet this goal, the college has identified five key priorities for investment. These represent the areas that stand to impact the future in the most significant ways.

Funding Priorities



Departmental Overviews ▼

Department of Chemical Engineering

Tremendous growth has been seen in the department over the past ten years, doubling student populations and becoming a research-intensive department. Hard-working students are well prepared for an exciting and challenging profession in chemical engineering and are exposed to cutting edge research with faculty who are leaders in the following research areas: **Bioengineering, Energy and Sustainability, Polymers and Materials, and Simulation and Modeling in Chemical Engineering.**

Department of Computer Science

Computer science has risen to the forefront of **global technology advancement**. Students are educated to be the engineers, scientists, and leaders of the future. Research in the department addresses important problems that impact the capability and advancement of computing: making our **infrastructure and software** safer, smarter, and more secure; enabling valuable analyses of **sensor and social networks**; protecting visually impaired Internet users from **cyber attacks**; and exploiting **Big Data's** potential.

Department of Industrial Engineering

Red Raider industrial engineers gain experience in traditional application areas of **applied optimization, engineering management, supply chain and logistics, transportation, biofuels, and ergonomics and human factors**, but build on that knowledge to integrate **decision support systems** and skills that are gained through the department's programs. Faculty members are researching and teaching a **systems approach to petroleum well exploration**, as well as **emerging advancements in additive manufacturing.**

Bob L. Herd Department of Petroleum Engineering

A leading producer of **industry ready petroleum engineers**, the department is ushering in a new era in petroleum engineering **production and operations education**. Historically known for graduating production and operations engineers, recent advancements in curriculum allow undergraduate students to specialize in **drilling engineering, reservoir engineering, or production engineering**, helping to fill key niches in the oil and gas industry.

Department of Civil, Environmental, & Construction Engineering

The department prepares students for careers in civil, construction, environmental, geotechnical, structural, transportation, water resources, and wind engineering. Faculty members have risen to international prominence in **wind engineering, water resources engineering, and glazing designs** for wind and blast loads. With a changing world, the department is preparing students for **emerging technological advances** and working to maintain **sustainability of resources** in all aspects of projects.

Department of Electrical & Computer Engineering

Through close contact with faculty members, electrical and computer engineering students gain exposure to mentors who are international experts in impactful fields from **pulsed power and power electronics** to **nanophotonics**. The department is moving forward in key areas of technological advancement, including **smart grids and grid integration for renewable energy, silicon carbide and wide bandgap materials** for power electronics and nanophotonics, and **biomedical engineering** applications.

Department of Mechanical Engineering

The largest department within the college, students gain insights and help **advance the front lines** of engineering – with a focus on hands-on applications – in areas such as **high pressure, energetic, nano- and bio-materials, fluid mechanics, controls, and bioengineering research**. In addition, the department is on the forefront of instruction and research on advanced manufacturing techniques, including **additive manufacturing, prototyping, and 3D printing.**



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