



TEXAS TECH UNIVERSITY

## Edward E. Whitacre Jr. College of Engineering

### WHITACRE COLLEGE OF ENGINEERING FACTS

<b>Dean:</b>	Al Sacco Jr., Ph.D.
<b>Founded:</b>	1925
<b>Enrollments:</b>	PreEngineering 1,013
	Undergraduate 4,717
	Graduate 873
<b>Endowed Chairs, Professors, and Fellows:</b>	29
<b>Research Expenditures:</b>	\$15.4 million
<b>National Academy of Engineering Members:</b>	4

### ACADEMIC AREAS OF STUDY

Bioengineering  
Chemical Engineering  
Civil Engineering  
Computer Engineering  
Computer Science  
Construction Engineering  
Construction Engineering and Management  
Electrical Engineering  
Environmental Engineering  
Industrial Engineering  
Mechanical Engineering  
Nuclear Engineering  
Petroleum Engineering  
Software Engineering  
Systems and Engineering Management  
Wind Science and Engineering

### DEGREE PROGRAMS

11	Bachelor's Degrees
2	Graduate Certificates
12	Master's Degrees
9	Doctoral Degrees

### POINTS OF PRIDE

- Among the largest colleges of engineering in the U.S.
- One of the Wall Street Journal's "Top 25 schools that produce the best graduates."
- Ranked 82nd best college of engineering by U.S. News & World Report.
- Ranked 94th best graduate engineering school by U.S. News & World Report.
- Recipient of \$15 million gift from petroleum engineering alumnus Bob L. Herd.
- Home of National Academy of Engineering members Drs. Chau-Chyun Chen, Fazle Hussain, Kishor C. Mehta, and Danny Reible.
- One of only 16 accredited petroleum engineering programs in the U.S.



### THE COLLEGE

The Texas Tech University Whitacre College of Engineering offers quality undergraduate programs that stress the fundamentals of engineering and its practice. Graduates are ready for an engineering career, advanced studies, or other professional paths.

Graduate programs provide strong research experiences, as well as preparation for a professional, academic, or research career.

Texas Tech faculty and students pursue basic and applied research that generate new knowledge and create technical solutions to society's challenges, all in an environment that is committed to the individual student's success.

### AREAS OF EXCELLENCE

#### Nano Tech Center and Nanophotonics Center

The primary emphasis of the Nano Tech Center and the Nanophotonics Center is the study of the behavior of light at the nanometer scale. These centers study the generation and manipulation of light using ultrasmall, engineered structures. This tiny technology has the potential to revolutionize telecommunications, the computer industry, as well as residential and commercial lighting.



#### Pulsed Power and Power Electronics

Pulsed Power has the potential to be revolutionary technology for armed forces by equipping them with devices to trigger or neutralize improvised explosive devices before their convoy approaches, thus saving lives. This high voltage system also could provide efficient military ship power for destroyers at sea.

#### Water Resources Center

The WRC's research activities focus on current water issues of regional importance to the Texas High Plains as well as international water issues. Focusing on water augmentation, conservation, and protection, the group investigates perchlorate occurrence, wastewater issues, and municipal water conservation

#### Multidisciplinary Research in Transportation (TechMRT)

TechMRT conducts laboratory and field research for various transportation funding organizations and programs. The research portfolio includes pavement and bridge engineering, geotechnical systems, roadway planning, environmental issues, hydraulics, construction, and vehicle engineering.





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## Developing Successful Leaders in Engineering

Our graduates become highly successful leaders in the engineering profession and business world. More than 900 of our graduates are currently presidents or CEOs of companies. Some of these include:

- **Ed Whitacre**  
former chairman of the board and CEO of General Motors Company  
former chairman, CEO, and president of AT&T
- **Dain Hancock**  
former president of Lockheed-Martin Aeronautics
- **Fred Bucy**  
former president and CEO of Texas Instruments

We have honored 226 Distinguished Engineers over the past 48 years and look forward to recognizing more of our exceptional graduates.

### CONTACTS

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The Whitacre College of Engineering offers 34 degrees and certificates from seven departments. Here is a look at the departments and some of their research specialties.

**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. *Our faculty are experts in polymers and materials, nano-technology, energetic nano-materials, biotechnology and biomedical engineering, bio-molecular modeling and alternative new generation biofuels.*

**CIVIL, ENVIRONMENTAL, AND CONSTRUCTION ENGINEERING.** From designing modern skyscrapers to ensuring clean drinking water, civil and environmental engineers affect quality of life and public safety. Construction engineers are responsible for a wide range of duties associated with the development, design, and management of construction-related processes that are required to take a project from its initial conception to a fully developed project. *The faculty at Texas Tech have expertise in design of buildings, shelters and bridges; windstorm damage mitigation; renewable wind energy systems; wastewater treatment, hazardous waste treatment, flooding, and water resources management. Faculty members also have a wide range of interest and expertise in geotextiles, wind and soil erosion modeling, rapid bridge replacement, prestressed concrete, construction management, digital remote control and telemetry systems, power generation, manufacturing processes, video imaging and analysis, sustainable construction, HVAC system design, and energy usage.*

**COMPUTER SCIENCE.** Computer science professionals study the theoretical foundations of information representation and computation. *Faculty in this department teach and do research in areas involving programming languages, distributed computing and parallel processing, artificial intelligence techniques, intelligent systems, robotics, software engineering, and distributed databases.*

**ELECTRICAL AND COMPUTER 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 – the creativity of electrical and computer engineers provide solutions that better our lives. *Our faculty members are experts in pulsed power systems, optoelectronics, computer vision and image processing, energy and power systems, medical microelectronics, embedded systems, wireless communications, and sustainable energy systems.*

**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. *Our faculty members are experts in biomechanics, safety, nanomaterials, environmentally conscious manufacturing, management of technology and complex organizations, and operations research.*

**MECHANICAL ENGINEERING.** Mechanical engineers design, manufacture, and test mechanical devices from submarines to tiny nanobot devices and artificial organs. *The faculty in mechanical engineering are experts in energetics, biomechanics, superhard materials, nanomechanics, computational and environmental fluid mechanics, fuel cells and alternative fuels in automotive design, and MEMs.*

**BOB L. HERD DEPARTMENT OF PETROLEUM ENGINEERING.** Petroleum engineers literally fuel the world – finding and producing safe, clean and affordable oil and gas supplies – all while safeguarding the environment. *Blending theory with practical knowledge, petroleum engineering faculty are experts in core analysis; pressure, volume, temperature (PVT) analysis; natural gas engineering; artificial lift and system analysis; and surface operations and facilities design.*