The Department of Chemical Engineering’s graduate program at Texas Tech University is dynamic and internationally visible. Our laboratory facilities support innovative experimental programs, and our computational resources are exploited for state-of-the-art modeling and simulation activities.

Award-winning research is carried out in the following areas:

- Bioengineering
- Energy and Sustainability
- Polymers and Materials
- Simulation and Modeling in Chemical Engineering

The master's and Ph.D. programs enable students to be involved in the research areas listed above.

Master of Science in Chemical Engineering

A written thesis and a minimum of 24 hours of graduate-level coursework, exclusive of thesis and seminar, are required for the master's degree. The master's program may also be completed without a thesis.

Doctor of Philosophy in Chemical Engineering

The Ph.D. program builds upon the foundation of knowledge developed in the course of prior studies at the B.S. and M.S. levels.

The Ph.D. degree requires five core courses plus twelve additional courses that are decided between the Ph.D. candidate and the faculty thesis advisor. Many of these courses are special topics and independent study courses.

Students must pass a qualifying examination for the doctorate degree and perform novel and innovative research that leads to a written thesis.

The thesis is defended in a final oral examination by the Doctoral committee that is chaired by the thesis advisor. Most students take five years post-B.S. to complete the Ph.D. degree plan.
Chemical Engineering Research
Faculty Research Specializations

Dr. Chau-Chyun Chen
Professor and Jack Maddox Distinguished Engineering Chair in Sustainable Energy
Molecular thermodynamics, phase equilibria, process modeling

Dr. Harvinder Singh Gill
Assistant Professor
Drug and vaccine delivery, bionanomaterials, immunomodulation

Dr. Ronald C. Hedden
Associate Professor
Networks, gels, and elastomers, biofuels, polymer processing

Dr. Rajesh Khare
Associate Professor
Molecular dynamics and simulations of polymer and soft matter

Dr. Carla Lacerda
Assistant Professor
Mitral heart valve degeneration: models, mechanisms, and prevention

Dr. Wei Li
Assistant Professor
Cell/polymer interactions, cell microenvironments, biomedical devices

Dr. Jeremy Marston
Assistant Professor
Fluid and granular flows, cavitation, high speed imaging

Dr. Gregory B. McKenna
Horn Professor and John R. Bradford Chair in Engineering
Polymer and soft matter physics, rheology, nanorheology, nanomechanics

Dr. Nurxat Nuraje
Assistant Professor
Enhanced oil recovery, photocatalysis, renewable energy

Dr. Al Sacco Jr.
Dean of the Whitacre College of Engineering
Transition metal and acid catalysts, zeolite synthesis

Dr. Shemia Jatib-Khatib
Assistant Professor
Heterogeneous catalysis, membrane reactors

Dr. Siva A. Vanapalli
Associate Professor and Graduate Advisor
Microfluidics, mechanics of cells and biopolymers, colloidal assembly

Dr. Wei Li
Assistant Professor
Cell/polymer interactions, cell microenvironments, biomedical devices

Dr. Theodore F. Wiesner
Associate Professor
Solar energy, hydrogen production, CO₂ mitigation

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Professor and Jack Maddox Distinguished Engineering Chair in Sustainable Energy
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