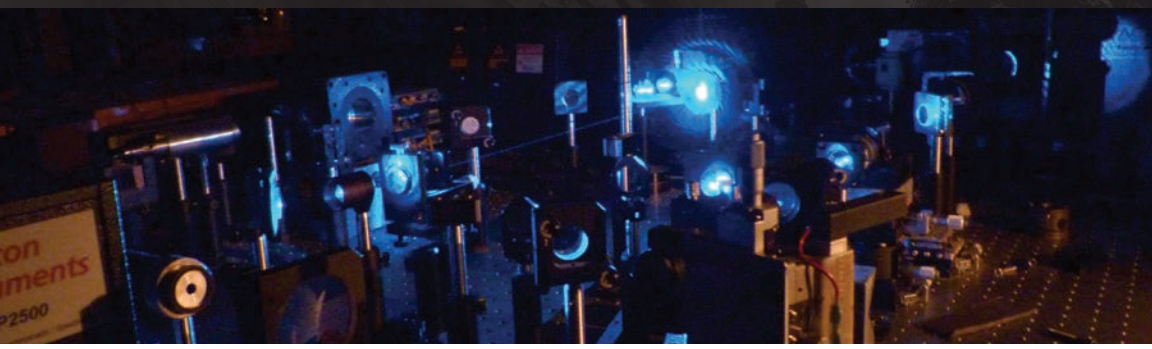
TEXAS TECH UNIVERSITY

Department *of* Mechanical Engineering™



ABOUT THE DEPARTMENT

Undergraduate Students:	693
Master's Students:	49
Doctoral Students:	93
Faculty Members:	34

GRADUATE DEGREES

Doctor of Philosophy:
Mechanical Engineering

Master of Science:
Mechanical Engineering

CONTACTS

Dr. Jharna Chaudhuri
Department Chair
jharna.chaudhuri@ttu.edu

Dr. Jerzy Blawzdziewicz
Director of Graduate Studies
jerzy.blawzdziewicz@ttu.edu

MECHANICAL ENGINEERING

RESEARCH

Both faculty and students in mechanical engineering at Texas Tech work on a variety of research projects including heat transfer, combustion, and energetic materials; biomechanics, cardiovascular mechanics, microfluidics and microrheology, soft matter and complex fluids, and bio-inspired devices; computational mechanics; nanomaterials; high pressure materials and failure analysis; human–centric design research; control science and engineering; computational fluid dynamics, wind energy, muli-dimensional flow and the nitro-hydrogen economy.

GRADUATE PROGRAMS

The Department of Mechanical Engineering offers programs leading to the Master of Science in Mechanical Engineering (M.S.M.E.) and the Doctor of Philosophy degrees.

The majority of M.S.M.E. and Ph.D. graduates find employment in private industry or in government laboratories. Recent graduates have been employed by Sandia Labs, Chrysler, GM, John Deere, Texas Instruments, Shell Research, BP Amoco, Weber Aircraft, Apple Computer, Applied Materials, and Caterpillar.

Master of Science in Mechanical Engineering

The MSME is a graduate degree requiring an additional 18 to 24 months of study beyond the undergraduate degree.

The department offers the three master's program options: thesis, report and coursework only. Students in pursuing each program option must select and designate a major area of study from the four streams available:

- Solid Mechanics
- Thermofluids and Heat Transfer
- Dynamics and Controls
- Design

Students are required to submit a degree plan during their first semester.

Doctor of Philosophy in Mechanical Engineering

The Ph.D. in mechanical engineering is a graduate degree requiring a minimum of three years of graduate study beyond the undergraduate degree. It is awarded to students who have completed a program of graduate courses, a final examination, and a dissertation. Completion of the Ph.D. normally requires approximately 24 to 36 months beyond the master's degree.

TEXAS TECH UNIVERSITY

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Mechanical Engineering Research

Faculty Research Specializations

Dr. Burak Aksak
Assistant Professor
Development of bio–inspired devices for adhesion, sensing, actuation and energy harvesting. Multi–functional, self–sufficient systems that exploit micro/nano structures.

Dr. Ed Anderson
Professor
Student Learning, Heat Transfer, Energy Conservation

Dr. Alan Barhorst
Professor
Multi–Body, Elasto–Dynamics, and Control, Bio–Mechanics, Fluid–Structure Interaction, NDE (Acoustic Emission), Parametric Optimization, Robotics, Vibrations

Dr. Jordan Berg
Professor and Co-Director of Nano Tech Center
Modeling, Design, Control, and Fabrication of Microsystems, Control of Non–Linear Systems, Microsensors, Bifurcations, Unfoldings, and Singularities of Control Systems

Dr. Sukalyan Bhattacharya
Associate Professor
Low Reynold's Number Hydrodynamics, Turbulence and Turbulent Scalar Transport, Statistical Mechanics

Dr. Jerzy Blawzdziewicz
Professor and Director of Graduate Program
Theoretical & Numerical Descriptions of Complex Materials: Colloidal Suspensions, Functional Nanocomposite Membranes, Metallic Glasses, Soft Biological Matter

Dr. Luciano Castillo
Cash Foundation Engineering Chair and Professor
Mod./Exper. Wind Energy Array; Single-Blade Aerodyn.; Multi-Scale & Asymptotic Meth. in Turbulent Boundary Layers; Exper., Theor., & Num. Fluid Mech., Forced Convct. Heat Transfer

Dr. Jharna Chaudhuri, P.E.
Department Chair and Professor
Luminescent Nano–Materials, Wide Band Gap Semiconductors, High Resolution Transmission Electron Microscopy, Synchrotron X–Ray Topography, High Resolution X–Ray Diffraction

Dr. Gordon Christopher
Assistant Professor
Interfacial and bulk rheolgoy using microfluidics and other novel techniques

Dr. Hanna Cho
Assistant Professor
Nonlinear dynamics in micro/nanomechanical systems, Multi-physical dynamics arisen in scanning probe microscopy systems, Micro/nanomechanical structures

Dr. Ming Chyu, P.E.
Professor and Coordinator of M.Eng. Healthcare Engineering Option
Healthcare Engineering, Thermal Fluid Sciences, Energy Systems

Dr. Stephen Ekwaro-Osire, P.E.
Professor and Associate Dean of Research and Graduate Programs
Engineering Design, Vibrations, Orthopaedic Biomechanics, Engineering Education

Dr. Atila Ertas
Professor
Transdisciplinary Design, Test Method Development, Experimental & Theoretical Study of Nonlinear Dynamics, Random Vibration, Acoustics

Dr. Zhaoming He
Associate Professor
Heart–Valve Tissue Mechanics, Cardiovascular Mechano–Biology, Cardiovascular Medical Devices

Dr. Qing Hui
Associate Professor
Large-Scale Physical Network Systems; Threat Detection and Design Experimental Systems; Cyber-Physical Network Systems; Resilience of Multi-Layer and Multi-Dependent Networks

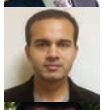
Dr. Fazle Hussain
President's Distinguished Chair in Engineering and Science, Senior Adviser to the President, Professor
Vortex dynamics, turbulence, and measurement techniques, Coherent structures in fluid turbulence

Dr. Alexander Idesman
Associate Professor
Computational Mechanics Including: Finite Element Method, Multiscale Approach, Metal Forming. Continuum Mechanics

Dr. Darryl James, P.E.
Professor
Physical Simulation of Tornado–Like Vortices, Computational & Experimental Fluid Mechanics, Combined–Mode Heat Transfer & Fluid Mechanics, Turbulence–Enhanced Heat Transfer

Dr. Alan Jankowski
Professor
Material Properties, Nanostructured Materials, Phase Transformations, Microstructure & Microscopy, Synthesis & Processing, Nanotechnology

Dr. Jungkyu (Jay) Kim
Assistant Professor
High-throughput gene/protein analysis, Biosensor and Bioelectronics, Programmable microfluidic platform, Point-of-Care diagnostics, Cell and Tissue engineering and Biomechanics



Dr. Golden Kumar
Assistant Professor
Bio-inspired structures in metals, Materials properties at multiple scales, Unconventional nano-fabrication techniques, Environmental and health issues related to nano-materials

Dr. Todd Lillian
Assistant Professor
Biophysics, Dynamics & Vibrations, Cable Dynamics

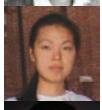
Dr. Yanzhang Ma
Professor
Diamond Anvil Cell and Laser–Heating High–Temperature Techniques, Stress & Strain Under High–Pressure, Synchrotron X–Ray Measurement, High–Pressure Spectroscopy

Dr. Tim Maxwell
Professor
Automotive Systems, Alternative Fuels, Wind Engineering, Computational Fluid Dynamics

Dr. Hanna Moussa
Assistant Professor
Radiation safety and control, Dose and risk assessment, Radiation protection and detection, Radiation transport and modeling, Radiation shielding, Space radiation

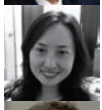
Dr. Michelle Pantoya
Wright Regents Chair and Professor
Energetic Materials, Combustion, Experimental Heat Transfer

Dr. Siva Parameswaran
Professor
High frequency Oscillating Ventilators; Far-wake development; Computational models for turbine-turbine interaction; Turbulence models for lift-coefficients for flow around bluff bodies



Dr. Jingjing (Jenny) Qiu
Assistant Professor
Modeling & Simulation of Micro/Nano Flow, Multiscale Composites, Biological Materials

Dr. Jahan Rasty, P.E., M.B.A.
Professor
Materials Performance & Behavior Characterization; Component Failure Analysis & Investigation; Manufacturing; Mechanical Metallurgy; Numerical Modeling of Large–Strain Manufacturing



Dr. Beibei Ren
Assistant Professor
Nonlinear System Control Methods and Algorithm Design: Adaptive Control, Neural Networks, Boundary Control of Systems Modeled by PDEs, Real-time Optimization Using Extremum Seeking

Dr. Jian Sheng
Associate Professor and Whitacre Endowed Chair
Complex Transport phenomenon, Hydrodynamic interactions, Bio-inspired surfaces, Biofilm initiation and formation, Biological and biomedical fluid mechanics, Advanced sustainable energy systems

Dr. Craig Snoeyink
Assistant Professor
Microfluidics, Micro-Particle Tracking Velocimetry and Particle Image Velocimetry, Super-Resolution Imaging, Biomedical Imaging

Dr. James Yang
Associate Professor
Biomechanics & bio-inspired systems, Robotics & Multibody Dynamic systems, Human modeling/simulation, Human locomotion, Slips/falls, Spine biomechanics, Human-centric design, Healthcare engineering

Dr. Changdong Yeo
Assistant Professor
Contact Mechanics & Surface Engineering of Micro–/Nano–Scale Systems, Dynamic Adhesive Surface Interactions, Nano–Indentations/Nano–Scratch Techniques

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