COLLEGE OF ENGINEERING
FACULTY AREAS OF EXPERTISE BY DEPARTMENT

DEPARTMENT OF CHEMICAL ENGINEERING		
NAME	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Arce, Pedro Chair and Professor	parce@tntech.edu (931) 372-3267	**NANOSTRUCTURED MATERIALS**-*With Functional Performance* (Health Care Engineering Applications: Hydrogels for clinical diagnostics, wound healing, math-assisted medicine, tissue scaffolds and assisted drug delivery) • **MICRO- AND NANO-FLOWS** *in Biophysical Systems* (Microcirculatory and renal system pathologies, arterial stenosis, kidney failure, etc.) • **ENVIRONMENTAL CATALYSIS** (Advanced oxidation in water, soil and air; photocatalytic clean energy production, electrokinetics-based remediation; battery and fuel cell materials) • **ENGINEERING EDUCATION:** (collaborative-, creative- and innovation-driven learning; constructionistic approaches)
Arias Chavez, Laura H. Assistant Professor	lchavez@tntech.edu (931) 372-3666	Green energy production • Decentralized and low energy water treatment • Desalination • Reclamation of energy and materials from waste streams • Fabrication of polymeric membranes for water treatment
Biernacki, Joseph J. Professor	jbiernacki@tntech.edu (931) 372 3667	Modeling of multi-scale materials systems composite concrete systems
Ghorashi, Bahman Professor	bghorashi@tntech.edu (931)372-3224	Blockchain technology applied to chemical industry • Blockchain technology applied to chemical industry • Agility and agile manufacturing - Mass customization • Agility and agile manufacturing - Mass customization
Padmanabhan, Venkat Assistant Professor	vpadmanabhan@tntech.edu (931) 372-3606	Self-assembly of nanoparticles in polymer matrix • Polymer nanocomposite films for organic photovoltaics • Biomechanics of Caenorhabditis elegans
Rice, Cynthia A. Assistant Professor	crice@tntech.edu (931) 372-6059	Direct Liquid Fuel Cells: Formic acid and methanol • Freeze dynamics for PEMFC • Cathode catalyst durability for automotive PEMFC • Electrochemical diagnostics
Sanders, Robby Associate Professor	rsanders@tntech.edu (931) 372-2494	Bio-assay development • Drug delivery • Wound healing

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Stretz, Holly Professor	hstretz@tntech.edu (931)372-3495	Research program in interfaces in 3-D printing • High-throughput on demand manufacturing of pharmaceuticals • Nanomaterials as sensors • Nanocomposite water treatment membranes • Expertise in polymer nanocomposites
Zhang, Liqun (Laura) Assistant Professor	lzhang@tntech.edu (931) 372-3474	Molecular simulation on biomass modified asphalt, warm mix asphalt • Simulations and modeling on structure and dynamics of human beta defensin type 3 • Interaction with lipid membranes and receptors
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING		
NAME	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Badoe, Daniel A. Professor	dbadoe@tntech.edu (931) 372-3490	Urban travel demand modeling • Transportation data collection • Travel behavior analysis
Click, Steven Associate Professor	sclick@tntech.edu (931) 372-6464	Traffic signal design, timing, operations, and analysis • Traffic signal system design, timing, operations, and analysis • Non-traditional intersection design, operations, and analysis • Non-traditional interchange design, operations, and analysis • Highway traffic simulation modeling
Crouch, L. K. Professor	lcrouch@tntech.edu (931) 372-3196	Concrete • Aggregates • Flowable fill
Datta, Tania Assistant Professor	tdatta@tntech.edu (931) 372-3446	Environmental microbiology • Resource recovery from organic waste • Role of microbes in aquatic ecosystems
Henderson, Craig Professor	chenderson@tntech.edu (931)372-3062	Masonry, concrete and steel testing and design • Structural dynamics and earthquake engineering • Computational structural modeling
Huddleston, David Professor	dhuddleston@tntech.edu (931) 372-3486	Computational design coupling CFD with nonlinear optimization • Water resources engineering • Open-channel flows, fluid mechanics, applied aerodynamics
Huff, Tim Assistant Professor	thuff@tntech.edu (931) 372-3605	Earthquake engineering • Seismic design of structures • Ground motion selection and modification for structural analysis • Nonlinear analysis of structures in practice • Seismic isolation • Bridge design
Huo, Sharon Associate Provost for Tech and Professor	xhuo@tntech.edu (931) 372-3463	Structural analysis • Reinforced concrete design • Prestressed concrete design • Structural steel design • Bridge design

Kalyanapu, Alfred Associate Professor	akalyanapu@tntech.edu (931) 337-3561	Climate impacts • Computational hydraulics and Hydrology • Hydraulic/hydrologic modeling urban water management • Regional scale flood modeling and simulation
Liu, Jane Professor	jliu@tntech.edu (931) 372-3256	Composite materials • Vibration analysis, plates & shells • Computational mechanics symbolic computer systems in engr. applications • Computational algebraic geometry in nonlinear structural analysis
Mohr, Benjamin Chair and Associate Professor	bmohr@tntech.edu (931) 372-3454	Durability, microstructure, and chemistry of cement-based materials • Early-age behavior of cement and concrete • Fiber-reinforced concrete • Supplementary cementitious materials
Oswalt, Jessica Interim Associate Dean for Academic Affairs for the College of Engineering and Professor	joswalt@tntech.edu (931) 372-3782	Engineering management including engineering economics • Project management • Process improvement • Systems modeling
Otuonye, Francis Assoc. VP Research for Tech and Professor	fotuonye@tntech.edu (931) 372-3374	Geotechnical engineering • Mining engineering • Health and safety impacts
Ramirez, Guillermo Associate Professor	gramirez@tntech.edu (931) 372-3261	Theoretical and computational mechanics • Mathematical formulation and corresponding computer implementation to describe the electro-mechanical behavior of solids under different types of environments
VandenBerge, Daniel Assistant Professor	dvandenberge@tntech.edu (931) 372-3257	Rapid drawdown stability analysis using the finite element method
Weathers, Lenly Associate Professor	lweathers@tntech.edu (931) 372-3539	Transport of pollutants in the environment • Transformation of chlorinated compounds • Oxidized metals and other pollutants in anaerobic environments in the presence of metallic iron
COMPUTER SCIENCE		
NAME	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Eberle, William (Bill) Associate Professor	weberle@tntech.edu (931) 372-3278	Graph-based anomaly detection

Elizandro, David Professor	delizandro@tntech.edu (931) 372-3386	Institutional leadership • Strategic planning • Systems integration and effectiveness
Gannod, Gerald Chair and Professor	jgannod@tntech.edu (931) 372-3691	Software reverse engineering • Web and mobile development (specifically web services in enterprise computing) • Predictive analytics • Visualization • Agile approaches for computing education
Ghafoor, Sheikh Professor	sghafoor@tntech.edu (931) 372-3687	Middleware for heterogeneous HPC • Linear algebra library for machine learning • Secure resource management for HPC • Malware detection and prevention • Computer science education
Kosa, Martha Associate Professor	mjkosa@tntech.edu (931) 372-3579	Theoretical problems in distributed computing
Rahman, Mohammad Assistant Professor	marahman@tntech.edu (931) 372-3525	Network and information security analytics and automation • Policy verification and threat analytics, risk assessment and security hardening • Dependable management of cyber-physical systems
Scott, Stephen Professor	sscott@tntech.edu (931) 372-6484	Cloud, cluster, and grid computing • Resilient high performance distributed, heterogeneous, and parallel computing
Siraj, Ambareen Director, Cybersecurity Education, Research and Outreach Center and Professor	asiraj@tntech.edu (931) 372-3448	Cyber security in smart grid • Network intrusion detection • Situational awareness in security • Security education
Talbert, Doug Associate Professor	dtalbert@tntech.edu (931) 372-6178	Artificial intelligence • Data analytics • Health information data analysis
ELECTRICAL AND COMPUTER ENGINEERING **NAME**	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Alouani, Ali T. Professor	aalouani@tntech.edu (931) 372-3383	Sensor fusion • Fuzzy logic control • Mechatronics systems
Austen, Jeffrey R. Associate Professor	jausten@tntech.edu (931) 372-2485	Digital signal processing • Telecommunications • Computer aided engineering
Belkacemi, Rabie Associate Professor	rbelkacemi@tntech.edu (931) 372-3626	Smart grid (power and energy systems)
Bhattacharya, Indranil Assistant Professor	ibhattacharya@tntech.edu (931) 372-3352	High-efficiency solar cells, battery (Li-air/ion, Al-air/ion) • Semiconductor electronics • Photonics and optics • Electromagnetics, power electronics • Medical electronics

Bruce, J.W. Associate Professor	jwbruce@tntech.edu (931)372-3453	Data converter architectures • Embedded and cyber-physical systems design • Quantum computing logic systems • Integration of unmanned aerial vehicles in the national airspace • Engineering education
Bruce, Lori Provost, VP for Academic Affairs and Professor	lbruce@tntech.edu (931) 372-3224	Remote sensing • Image analysis • Artificial intelligence • Data analytics • Hyperspectral imaging and precision agriculture
Carnal, Charles Professor	charleslc@tntech.edu (931) 372-3858	Robot control systems • Statistical signal analysis
Hasan, Syed Assistant Professor	shasan@tntech.edu (931) 372-3462	Reliable VLSI circuit design • Low power wireless • Sensor network nodes • Asynchronous VLSI circuits • Probabilistic formal verification of algorithms
Mahajan, Satish Interim Chair, Director of Center for Energy Systems Research and Professor	smahajan@tntech.edu (931) 372-3760	Lasers • LEDs • Solar cells • Optical fibers • High power switchgear • Power systems
Mahmoud, Mohamed Associate Professor	mmahmoud@tntech.edu (931) 372-3677	Network security and privacy preservation
Ojo, Joseph O. Professor	jojo@tntech.edu (931) 372-3869	Electric machine analysis and design • Adjustable • Speed motor drives • Power electronic convertors • Control theory applied to power electronics and power systems, power systems economics and deregulation issues
Qiu, Robert Professor	rqui@tntech.edu (931) 372-3847	Cognitive radio network • Wireless tomography • Smart grid communications • Big data • Concentration of measure
Radman, Ghadir Professor	gradman@tntech.edu (931) 372-3520	Smart grid • Integration of renewable energy sources • Power system operation/control
GENERAL AND BASIC ENGINEERING		
NAME	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Wells, S. Michael Assistant Professor	mwells@tntech.edu (931) 372-3829	Motivation student success • Retention
Wilson, Christopher Chair and Associate Professor	chriswilson@tntech.edu (931) 372-3216	Composite materials testing • Materials properties • Simulation

MANUFACTURING AND ENGINEERING TECHNOLOGY		
NAME	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Elsawy, Ahmed H. Chair and Professor	aelsawy@tntech.edu (931) 372-3238	Development of manufacturing processing • Welding engineering and metallurgy • Recycling and reuse of industrial solid waste materials • Web-based distance learning • Computer applications in technology • Solar and wind renewable energies
Fidan, Ismail Professor	ifidan@tntech.edu (931) 372-6298	Electronics manufacturing • Additive manufacturing • Renewable energy • STEM education and distance learning/remote laboratories
Kamal, Ahmed Associate Professor	akamal@tntech.edu (931) 372-6438	Power electronics systems • Embedded control system • Sensor and biosensor • Digital signal processing • Biomedical system • System identification
Kim, Duckbong Assistant Professor	dkim@tntech.edu (931) 372-3327	Advanced manufacturing technologies, such as additive manufacturing, smart manufacturing and data analytics, sustainable manufacturing, wire+arc additive manufacturing (WAAM), super alloy and high entropy alloy (HEA)
Vondra, Fred L. Professor	fvondra@tntech.edu (931) 372-3527	Metal casting processes • Foundry tooling materials • Industrial maintenance
MECHANICAL ENGINEERING		
NAME	**CONTACT INFORMATION**	**RESEARCH INTERESTS AND EXPERTISE**
Abounassif, Ahmed R. Instructor	aabounassif@tntech.edu (931) 372-6028	Computational fluid dynamics • Eulerian multiphase flow simulations
Anton, Steve Assistant Professor	santon@tntech.edu (931) 372-3287	Smart materials • Piezoelectric sensing • Structural health monitoring • Biomedical sensing • Energy harvesting • 3D printing • Robotics-based STEM education
Canfield, Stephen Professor	scanfield@tntech.edu (931) 372-6359	Mobile robot platforms • Solid mechanics • Optimization of compliant mechanisms
Chen, Pingen Assistant Professor	pchen@tntech.edu (931) 372-3310	Modeling • Diagnostics and control of dynamic systems, internal combustion engines • After treatment systems, automotive system control
Cui, Jie Professor	jiecui@tntech.edu (931) 372-3357	Computational fluid dynamics • Turbulence modeling • Large eddy simulation • Numerical heat transfer • Thermal fluids

Cunningham, Glenn T. Associate Professor	gcunningham@tntech.edu (931) 372-3826	Energy efficiency • Balance of plant energy systems • Thermal systems
Darvennes, Corinne Professor	cdarvennes@tntech.edu (931) 372-3253	Acoustics • NDE using ultrasonics • Noise measurement and remediation
Hoy, Darrell Interim Dean, College of Engineering and Professor	dhoy@tntech.edu (931) 372-3172	Experimental stress analysis • Photoelasticity • Strain gages • Optical stress analysis • Biomedical stress analysis
Idem, Stephen Professor	sidem@tntech.edu (931) 372-3607	Scale model testing • Fluid flow measurement • Thermal modeling • Fluid mechanics • Heat transfer
Languri, Ethan Assistant Professor	elanguri@tntech.edu (931) 372-6790	Thermal energy storage systems • Heat transfer fluid enhancement • Evaporation in porous media • Industrial energy efficiency • Combined heat and power systems • Numerical modeling
Motevalli, Vahid Associate Dean for Research and Innovation and Professor	vmotevalli@tntech.edu (931) 372-3172	Hybrid-electric vehicle systems and power- train • Combustion and fire safety • Aviation and transportation safety and security
Pardue, Sally Associate Professor	spardue@tntech.edu (931) 372-6573	Random vibrations • Modal analysis • Non-destructive evaluation (NDE) • Machine design
Rao, Mohan Chair and Professor	mrao@tntech.edu (931) 372-3254	Vibrations • Acoustics • Noise control • Damping design • Sound quality • Auditory engineering
Sundaram, Meenakshi R. Professor	msundaram@tntech.edu (931) 372-3790	Product design and development • Production • Systems design and operations management • Lean manufacturing and process improvements • Economic analysis and cost justification
Ting, Kwun-Lon **Professor**	kting@tntech.edu (931) 372-3230	Mechanism design • Kinematics • Machine design • Gearing • Robotics • Dynamics of machines
Vaselbehagh, Ahmad Assistant Professor	avaselbehagh@tntech.edu (931) 372-6468	Hydrodynamics of mechanical energy storage technologies, particularly, underwater energy storage plants
Wilson, Christopher Associate Professor	chriswilson@tntech.edu (931) 372-3216	Composite materials testing • Materials properties • Simulation
Wilson, Dale Professor	dwilson@tntech.edu (931) 372-3323	Fracture mechanics • Failure analysis • Machine design • MEMS • Mechanical properties of materials

Zhang, Ying Director, Center for Manufacturing Research and Professor	yzhang@tntech.edu (931) 372-3969	High-temperature protective coatings for gas turbine engine applications • Materials synthesis via chemical vapor deposition/pack cementation/electrodeposition • High-temperature oxidation and corrosion
Zhu, Jiahong (John) Professor	jzhu@tntech.edu (931) 372-3186	Solid oxide fuel cell • Zn-air batteries • High-temperature alloys • Processing of ceramic • Intermetallic and metallic coatings
CENTER FOR ENERGY SYSTEMS RESEARCH **NAME** **CONTACT INFORMATION** **RESEARCH INTERESTS AND EXPERTISE**		
Van Neste, Charles Research Assistant Professor	cvanneste@tntech.edu (931) 372-3682	Alternative forms of energy generation and transmission with a major focus in wireless and quasi-wireless power transfer • High frequency inverter design • Electronic instrumentation • Electromagnetic interactions