

College of Engineering Graduate Student Orientation

13 January 2022

Dr. William (Bill) Eberle
College of Engineering
Interim Assistant Dean of Graduate Studies

Dr. Francis Otuonye
College of Engineering
Interim Assistant Dean of Research



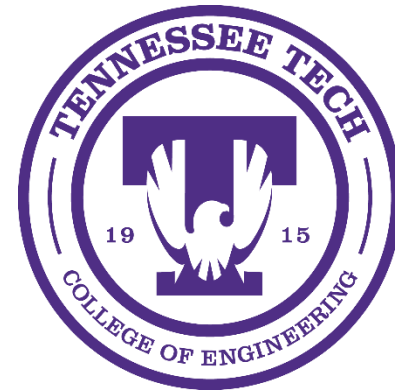
College of Engineering
TENNESSEE TECH

Welcome Students!

सुस्वागतम् स्वागतम् 欢迎 迎

اهلاً وسهلاً ¡Bienvenidos! خوش آمدید

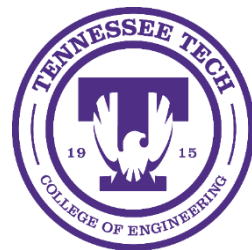
환영합니다 ようこそ Willkommen!



TTU – A Comprehensive University

- College of Agriculture and Human Ecology
- College of Arts and Sciences
- College of Business
- College of Education
- College of Fine Arts
- College of Engineering
- College of Graduate Studies
- College of Interdisciplinary Studies
- Whitson-Hester School of Nursing

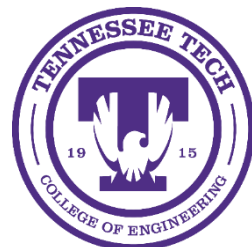
Opportunities for Inter- and Multi-Disciplinary Research



Degree Programs

7 BS; 6 MS; PhD in Engineering

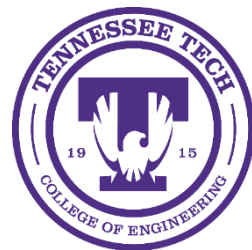
- Chemical Eng., BS, MS & PhD
- Civil Eng., BS, MS & PhD
- Computer Eng., BS
- Computer Science, BS, MS & PhD
- Electrical Eng., BS
- Electrical and Computer Eng., MS & PhD
- Manufacturing Engineering Technology, BS
- Mechanical Eng., BS, MS & PhD
- Online only MS in Engineering Management (housed in GBE)



College of Engineering Quick Facts

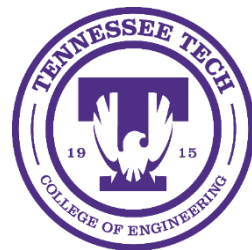
- About 2,500 Students
- Fall 2021 graduate student enrollment: **248**
- Largest TTU College
- \approx 1/3 of TTU Enrollment
- \approx 100 faculty and advisors
- \approx 18,500 Living Alumni
- Present in 8 building (excluding the Foundry)

First PhD Conferred: 1973-74



Roles and Responsibilities as Graduate Students: Core Values

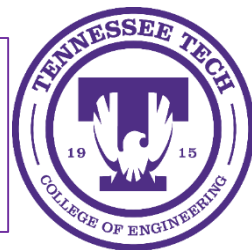
- **Commitment to Personal and Scholarly Integrity**
- **Teamwork**
- **Commitment to Excellence**
- **Commitment to Personal/Professional Development**
- **Valuing Partnerships, Cooperation, and Collaboration**
- **Commitment to Continuous Improvement**
- **Compliance with University Policies**



Two Dimensions of Ethics in Science and Engineering

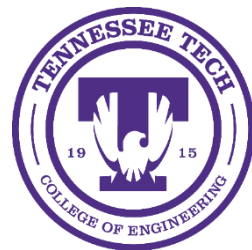
1. Engineers and scientists need to be **socially responsible** in their discoveries or when building products and processes for society.
 - **Social Responsibility** requires taking into consideration the needs of society.
2. Social responsibility requires **professional responsibility**.
 - Safety
 - Acceptable risk
 - Compliance
 - Confidentiality
 - Environmental health
 - Data integrity
 - Conflict of interest
 - Honesty/Dishonesty
 - Fairness
 - Accounting for uncertainty, etc.

*Adapted from lecture slides
on Engineering Ethics by
Dr. Mohan Rao.*

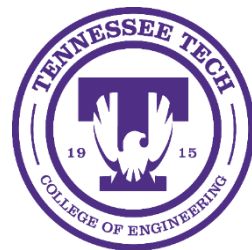


Roles and Responsibilities – Graduate Assistants

- **Academic Responsibilities**
 - Make progress toward a degree
 - Embrace a culture of discovery, learning and hard work
 - Maintain Full Academic Standing (GPA \geq 3.0)
- **Work Responsibilities**
 - Half-time \approx 10 Hours/wk
 - Full-time \approx 20 Hours/wk
 - On time and responsible delivery on tasks
 - Compliance with required training and regulations
- **Key Stakeholders**
 - Faculty Advisor/supervisor
 - College, Center and/or Department (Chair/Director and staff)



Overview of Graduate Studies and Research in College of Engineering



Degree Requirements

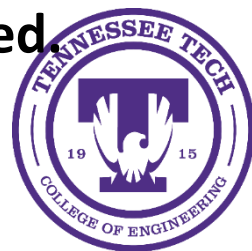
MS level - Departmental

MS Requirements, Set by Departments – Thesis and non-Thesis Options

- **Non-Thesis option, 31 credit hours. One credit is a seminar course.**
- **Thesis option, 30 credit hours.**

Graduate Assistants (TA or RA) must pursue a thesis option

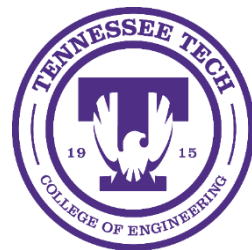
- 24 Semester hours of courses
 - Concentrate on courses in area of interest
 - 1 credit research seminar required by most departments
- 6 Semester hours of graduate research
 - Develop skills for independent study
 - Write thesis and present findings
- **Some departments have focus areas and require core courses**
- **Intended to be a two-year program**
- **Presentation and publication of your work is highly encouraged. Peer-reviewed publications is the best process**



PhD Degree Requirements, College-Wide

Direct-to-PhD

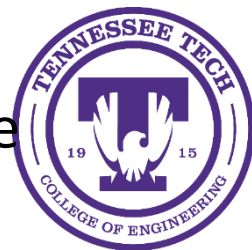
- Ph.D. Degree Requirements are established by each department around these basic college requirements
- 42 appropriate course credit hours
- **Qualifying Exam** (only for Direct PhD students who do not have a BS from an ABET accredited program)
- Can get a MS along the way
- Remaining requirements same for all PhD students (*next slide*)



PhD Degree Requirements, College-Wide

PhD from Masters

- Minimum of 18 HOURS OF COURSEWORK (after MS)
- Form your Advisory Committee before completing 15 credit hours. All PhD students must meet their Advisory Committee prior to completing these 15 credit hours and finalize their PoS. This action will be documented through a form to be submitted to the Dean's Office.
- Comprehensive Exam – complete when you have 80% of your course work completed, includes developing, presenting and defending your research proposal. *Do it sooner!*
- Dissertation – publicly defended, work closely with your entire committee.
- ***Publications – two peer-reviewed publications is strongly encouraged by all departments.***
- Multidisciplinary research and advisory committee is possible

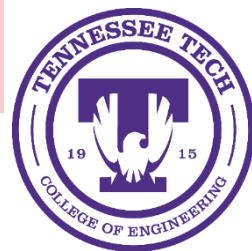


Graduate Studies - Thesis/Dissertation

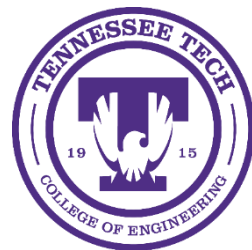
- In-depth investigation on a topic of **your** interest.
- Literature search on the previous research in the topic area.
- Develop a hypothesis for your research topic.
- Thesis/dissertation must demonstrate competency in independent research, analysis, technical writing, etc.
- Dissertation contributes to knowledge in the field.

How Long it Takes?

- Depends on **you!**
- Typical program duration:
 - Two years for M.S.
 - Three - Four years for Ph.D. (post M.S.)

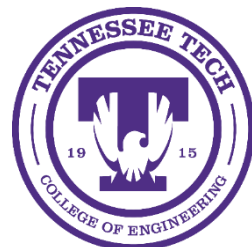


Expectations and Requirements



Expectations and Requirements

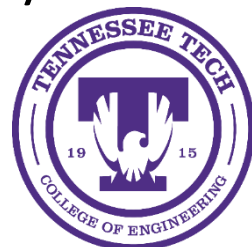
- **RESPOND PROMPTLY TO EMAIL REQUESTS**
- **GAs are expected to attend seminars sponsored by their Departments/Centers**
- **Offer letter is your contract (all GAs)**
- **Progress Reports signed off by faculty advisors must be submitted each semester (summer if on GRA appt.) – Varies by Center/Dept.**
 - December and May and as required for summer
- **Worker's Comp (Accident or Injury Reporting Procedures)**
- **Copies of Payroll Documents - Appointment letters & I-9 cards**
- **Confidentiality Agreement, Invention Disclosures, Laboratory Safety Form, & Student Non-use agreement**
- **Announcement of Thesis and Dissertation Defense (**std format**)**
- **Pdf copy of thesis or dissertation to the Center**
- **Exit Interview: Contact info., what is next for you, Equipment & key return**



Annual Workplace Conduct and Safety Training

CERTAIN TRAINING IS REQUIRED EVERY YEAR!!!

- **Institutional Diversity and Equity**
<https://www.tntech.edu/hr/diversity-equity/>
- **TTU Policy #143: Sexual Misconduct**
- **Title VI Training** - Title VI prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance. *(must be completed within 30 days of employment)*
<https://www.tntech.edu/hr/diversity-equity/titlevi.php>
- **Title IX and VAWA**- stipulates that no one, whether male or female, can be -- on the basis of sex -- excluded from participation in, denied benefits of, or be subjected to discrimination under any education program, service, or activity that is partially or wholly funded by federal dollars. <https://www.tntech.edu/titleix/>



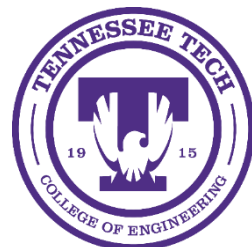
Annual Workplace Conduct and Safety Training

CERTAIN TRAINING IS REQUIRED EVERY YEAR!!!

- **Collaborative Institutional Training Initiative | CITI**
https://www.tntech.edu/research/researchcompliance/citi_training.php (*start here*)

<https://www.citiprogram.org/>

- **Visit Environmental Health and Safety web site for laboratory specific Safety Training Modules.**
<http://www.tntech.edu/safety/training.php>
- **CERTIFICATES OF COMPLETION FOR ALL REQUIRED ONLINE TRAINING MUST BE RETURNED TO YOUR RESPECTIVE LABORATORY, DEPARTMENT AND/OR CENTER OFFICE *ASAP***



Tuition and Fees Support

Current policy requires a minimum of 6 and maximum of 12 credit hours per semester for full-time GA's.

MS, no funding, full-time: 9 credit hours

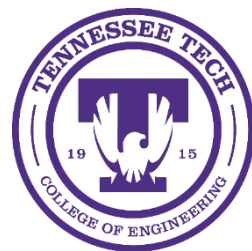
PhD, full-time: 6 credit hours for all

Tuition and Fees should only cover courses specified by student Program of Study (PoS) and consistent with department, college and university policies.

Recommended Credit Hour Load as a GA

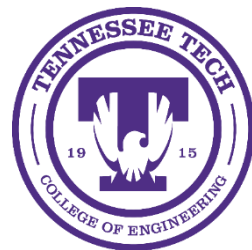
MS: 15-16 hour per academic year

PhD: 12-15 hours per academic year



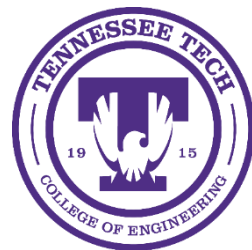
Sources of Funding to support your research

- TTU seed funding for faculty research grants
- Departments, Centers, CoE, Office of Research, University Offices (GTA, GRA, GA)
- **Travel grants from Dean's Office**
- **Travel funds from Student Organizations**
- Foundations and external grants
- **Fellowships from Federal Agencies (NSF-GRFP, DOD-NDSEG, NASA, NRC, ORAU, ...)**
- **ORNL based support**
- Industry internships



Process to Obtain/Maintain Funding

- Must be in Good Academic Standing
- Starts with faculty/department
- Must be competitive and Performance-Based
- Expected to be working on a Thesis research (GRA and GTA) – MS students
 - Except for CEROC SFS support
- Be aware of time limits for funding
- Carefully develop your program of study



Time Limits for Graduate Assistantship in CoE

Limits are based on first enrollment and regardless of source of funding

M.S. Program

Limited to maximum of two full years of support.
Exceptional conditions required for any funding extension to be granted.

Ph.D. Program

Post MS - Three year of support regardless of source of funding – candidacy must be achieved and Funding Extension Request Form Required.

Direct PhD – Same as post MS, but with four years of support.

Note, summer support possible either for teaching support or hourly support

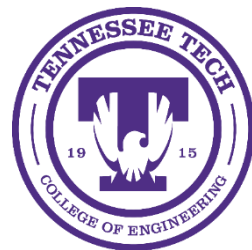


Information Sources - internal

Graduate Studies Website

- Faculty
- Departmental staff, Grad Studies staff
- Graduate student peers
- CoE Website
- Departmental websites
- Centers

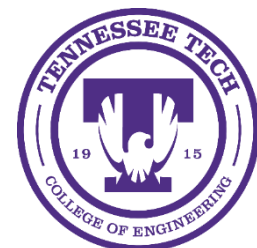
- Calendar
- Forms
- Degree Programs
- Funding Opportunities
- Thesis/Dissertation
- Navigating Graduate School
- **Graduate Catalog**
- <https://www.tntech.edu/graduatestudies/index.php>



Other Resources for Discovery and Learning (close by)

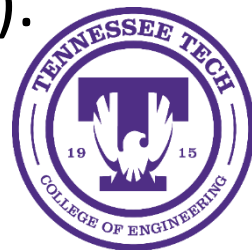


- Libraries on campus and around the country
- Centers, colleges and departments on campus
- Other Universities
- Oak Ridge National Laboratories
- Industry in the region and State



CoE Graduate Committee

- Chaired by the Associate Dean for Research & Innovation (*currently Interim Assistant Dean of Graduate Studies*)
- Representations from the 5 departments + a graduate student representative
- Policies and procedures governing admission and degree requirements
- New courses and changes to programs
- New programs
- Exceptions to policies and appeals
- Elected graduate student member (2-year term).
 - Seeking new member for Fall 2022



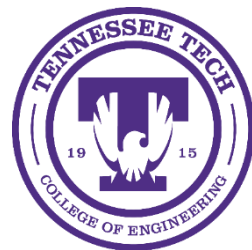
Looking forward to working with all of
you!

Questions?

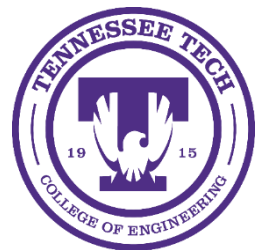


Grad Program: weberle@tntech.edu

Grad Research: fotuonye@tntech.edu



Introduction of Department Chairs and Graduate Coordinators



The Department of Chemical Engineering

Department Office: Prescott Hall 214

Phone: (931)-372-3239

Graduate Student Coordinator

Cynthia Rice, Ph.D.

Associate Professor

Office: Prescott Hall 448

Phone: (931)-372-6059

Email: crice@tntech.edu

Mission Statement

“The Mission of the Department of Chemical Engineering is to prepare relevant and adaptive chemical engineers in state-of-the-art areas by emphasizing real world problem solving and critical thinking skills.”



Holly Stretz, Ph.D.

Interim Chair and Professor of the Department of
Chemical Engineering



The Department of Civil and Environmental Engineering

Department Office: Prescott Hall 216

Phone: (931)-372-3454

Graduate Student Coordinator

Daniel Badoe, Ph.D.

Professor

Office: Prescott Hall 434

Phone: (931)-372-3490

Email: dbadoe@tntech.edu

Mission Statement

“The mission of the civil engineering program is to offer the strong academic content necessary to produce well-educated graduates who become innovative and productive members of society. Graduates will possess both the problem solving skills and the fundamentals of critical thinking and analysis that are crucial for success within the framework of the civil and environmental engineering profession.”



Benjamin Mohr, Ph.D.

Chair and Associate Professor of the Department of
Civil and Environmental Engineering



The Department of Computer Science

Department Office: Bruner Hall 242

Phone: (931)-372-3691

Graduate Student Coordinator

William Eberle, Ph.D.

Professor

Office: Bruner Hall 235

Phone: (931)-372- 3691

Email: weberle@tntech.edu

Mission Statement

“Our Mission is to be widely recognized for enabling students to have global impact through innovative, quality programs and research that emphasizes collaborative partnerships and the success of a diverse student, faculty, and alumni community.”



Gerald Gannod, Ph.D.

Chair and Professor of the Department of
Computer Science



The Department of Electrical and Computer Engineering

Department Office: Brown Hall 217

Phone: (931)-372-3397

Graduate Student Coordinator

Allen MacKenzie, Ph.D.

Chair and Professor

Office: Brown 217A

Phone: (931)-372- 3397

Email: amackenzie@tntech.edu

An Excerpt from the Department

“As a professional, you’ll be experienced in designing and manufacturing safe, economical products that enhance our quality of life. You’ll understand the latest programming languages, operating systems, and software engineering that connect the world.”



Allen MacKenzie, Ph.D.

Chair and Professor of the Department of
Electrical and Computer Engineering



The Department of Mechanical Engineering

Department Office: Brown Hall 224

Phone: (931)-372-3254

Graduate Student Coordinator

Jie Cui, Ph.D.

Assistant Chair and Professor

Office: Brown Hall 231

Phone: (931)-372-3357

Email: jiecui@tntech.edu

Mission Statement

“The Mechanical Engineering (ME) Department, within a regional and global context, will prepare its students for a productive career in a competitive, dynamic, and technologically-based society; will advance the knowledge of mechanical engineering principles and applications; and will serve the public.”



Mohan Rao, Ph.D.

Chair and Professor of the Department of
Mechanical Engineering

