College of Engineering
Graduate Student Orientation
12 January 2023

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

Dr. Francis Otuonye
College of Engineering
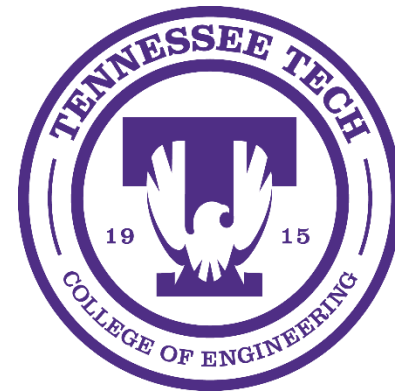Interim Assistant Dean of Research
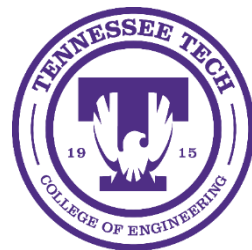
TTU – A Comprehensive University

- 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
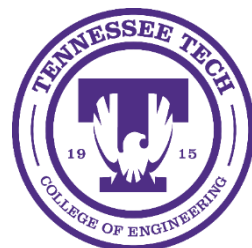- Whitson-Hester School of Nursing

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
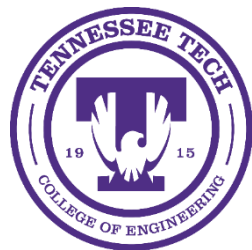- MS in Engineering Management (online only)

College of Engineering Quick Facts

- About 2,500 Students

- Fall 2022 graduate student enrollment: 251 *(~11% increase from 2021)*

- Largest TTU College

- ≈ 1/3 of TTU Enrollment
- ≈ 100 faculty and advisors
- ≈ 18,500 Living Alumni
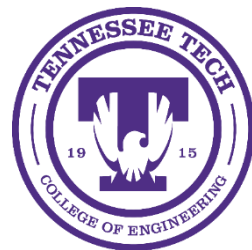
- Present in 6 buildings (excluding the Foundry)

First PhD Conferred: 1973-74

Engineering First Offered in 1923

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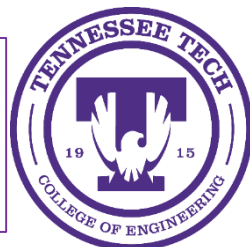# Roles and Responsibilities as Graduate Students: Core Values

➢ **Commitment to Personal and Scholarly Integrity**

➢ **Teamwork**

➢ **Commitment to Excellence**

➢ **Commitment to Personal/Professional Development**

➢ **Valuing Partnerships, Cooperation, and Collaboration**

➢ **Commitment to Continuous Improvement**
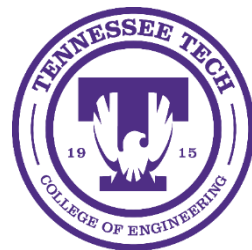
➢ **Compliance with University Policies**

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.

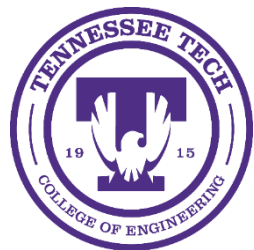*Adapted from lecture slides on Engineering Ethics by Dr. Mohan Rao.*

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 ≈ 10 Hours/wk**
  - ➤ **Full-time ≈ 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

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

- **Credit Hours**
  - Thesis option (30 hours)
  - Non-Thesis option (33 hours)
  - Required additional 1-hour credit (seminar course).

Some departments require their Graduate Assistants (TA or RA) to pursue a thesis
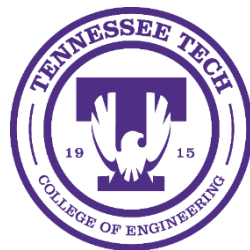
- 24 Semester hours of courses
  - ➢ Concentrate on courses in area of interest
  - ➢ 1 credit research seminar required by most departments
- 6 Semester hours of graduate research
  - ➢ Develop skills for independent study
  - ➢ Write thesis and present findings
- **Some departments have focus areas 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**

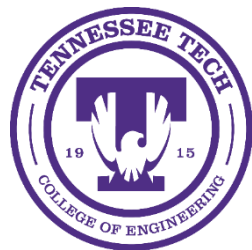# PhD Degree Requirements, College-Wide

Direct-to-PhD

- Ph.D. Degree Requirements are established by each department around these basic college requirements

- 42 appropriate course credit hours

- 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 – <u>publicly defended</u>, work closely with your entire committee.

- ***Publications – two peer-reviewed publications required.***

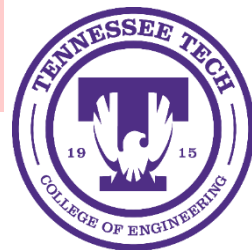- Multidisciplinary research and advisory committee is possible

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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.

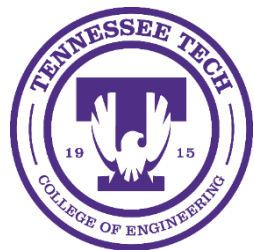➢ Dissertation contributes to knowledge in the field.

How Long it Takes?

➢ Depends on you!

➢ Typical program duration:
  ➢ Two years for M.S.
  ➢ Three - Four years for Ph.D. (post M.S.)
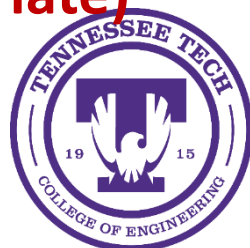
Expectations and Requirements

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.**
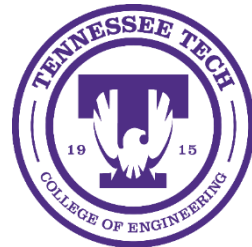 - **December and May and as required for summer**
- **Worker's Comp (Accident or Injury Reporting Procedures)**
- **Copies of Payroll Documents - Appointment letters & I-9 cards**
- **Confidentiality Agreement, Invention Disclosures, Laboratory Safety Form, & Student Non-use agreement**
- **Announcement of Thesis and Dissertation Defense (std format)**
- **Pdf copy of thesis or dissertation to a Center (if appropriate)**
- **Exit Interview: Contact info., what is next for you,**
  - **Equipment & key return**

Annual Workplace Conduct and Safety Training

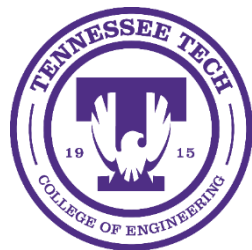**CERTAIN TRAINING IS REQUIRED EVERY YEAR!!!**

- **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 -** 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/**

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.

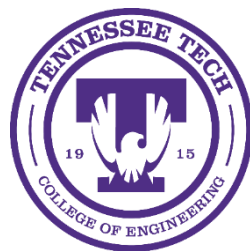MS, no funding, full-time: 9 credit hours

PhD, full-time: 6 credit hours (funded or not)

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

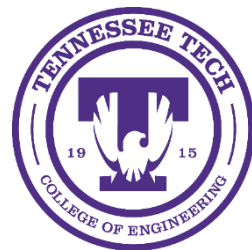Recommended Credit Hour Load as a GA

MS: 15-16 hour per academic year
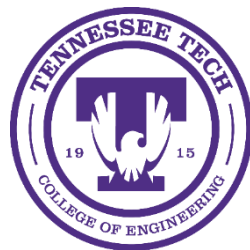
PhD: 12-15 hours per academic year

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
- Some departments expect GRA and GTA to be doing research towards a thesis (MS students)
  - Except for CEROC SFS support
- Carefully develop your program of study
- Be aware of time limits for funding (*next slide*)

Time Limits for Graduate Assistantship in CoE

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

M.S. Program
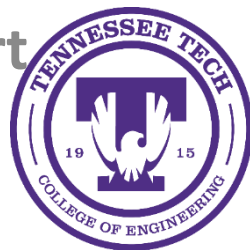> **Limited to maximum of two full years of support.**

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 five years of support.**

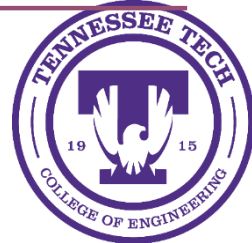**Exceptional conditions are required for any funding extension to be granted.**

Note, summer support possible either for teaching support or hourly support
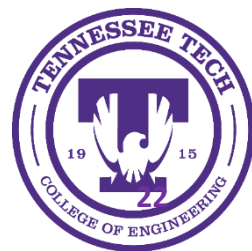
Information Sources - internal

- Faculty

- Departmental staff, Grad Studies staff

- Graduate student peers

- CoE Website

- Departmental websites

- Centers

Graduate Studies Website

- Calendar *(key dates on next slide)*

- Forms

- Degree Programs

- Funding Opportunities

- Thesis/Dissertation
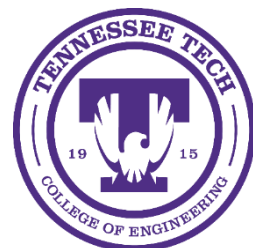
- Navigating Graduate School

- Graduate Catalog

- https://www.tntech.edu/graduatestudies/index.php

Key Dates – Spring 2023

Last Day to Register/Add a Class	*January 25*
Thesis/Dissertation Workshop (Tech Pride Room)	*TBD*
Graduate Studies Information Session (Tech Pride Room)	*TBD*
Last Day to Report Comprehensive Exam & Thesis/Dissertation Defense	*April 6*
Last Day to Submit Committee-Approved Thesis/Dissertation into ProQuest	*April 14*
Last Day to Submit Signed Thesis/Dissertation Certificate of Approval	*April 14*
Last Day to Submit Final Thesis/Dissertation Revisions	*April 28*
Last Day to Submit any other Forms/Memos required for Graduation	*April 28*
Last Day to Submit Survey of Earned Doctorate (Ph.D. Students)	*April 28*

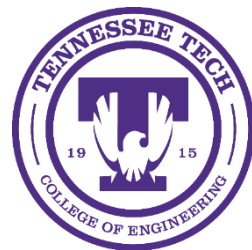# Other Resources for Discovery and Learning (close by)

- Libraries on campus and around the country

- Centers, colleges and departments on campus

- Other Universities

- Oak Ridge National Laboratories
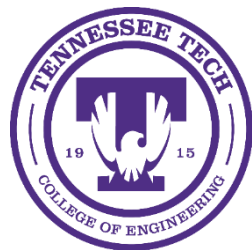
- Industry in the region and State

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

Advisement

- Most of you should have already been advised what courses to take this semester (especially if you are on an assistantship)

- If not, here is where to go ASAP:
  - Civil and Environmental Engineering: PRSC 216
  - Chemical Engineering: PRSC 214
  - Electrical and Computer Engineering: BRWN 217
  - Engineering Management: CLEM 321
  - Mechanical Engineering: BRWN 224
  - Computer Science: BRUN 238

Looking forward to working with all of you!

Questions?

Grad Studies: weberle@tntech.edu
Grad Research: fotuonye@tntech.edu