Fatema Tuz Zohra

Personal website | (512)-665-6532 | zohra.bd1971@gmail.com | LinkedIn profile

EDUCATION

Texas State University, San Marcos, TX
Ph.D. in Materials Science Engineering and Commercialization **Aug 2025**

Master of Science in Engineering **Aug 2020**

Rajshahi University of Engineering and Technology (RUET), Rajshahi, Bangladesh
Bachelor of Science in Mechanical Engineering **Feb 2014**

TEACHING EXPERIENCE

Lecturer **Aug 2025 – Present**
Texas State University, San Marcos, TX

- Teach **four courses per semester**, including *MFGE 4318/5318: Additive Manufacturing* (graduate level) and *ENGR 1304: Engineering Graphics* (undergraduate level, multiple sections with labs).
- Design and deliver **course materials and lectures** aligned with the syllabus, ensuring consistency in learning outcomes across lectures, labs, and assignments.
- Develop and assess **assignments, projects, and lab activities** to foster application-oriented learning and reinforce theoretical concepts.
- Integrate **hands-on lab experiences** with classroom instruction to enhance student understanding of design, visualization, and advanced manufacturing processes.
- Guide students in applying engineering principles to practical problem-solving, with an emphasis on **technical communication, design thinking, and innovation**.
- Maintain effective communication with students, provide timely feedback, and support student learning through office hours and mentoring.

Doctoral and Graduate Instructional Assistant **Sep 2018 – Dec 2024**
Texas State University, San Marcos, TX

- Supported course design and instruction for master's-level engineering curriculum by collaborating with faculty to develop learning objectives, instructional materials, and assessments, independently taught ***Engineering Mechanics*** during faculty absences due to conferences or sabbaticals.
- Assessed and evaluated student performance across multiple undergraduate and graduate-level engineering courses since Fall 2018, including ***CAD/CAM, Additive Manufacturing, Engineering Mechanics, and Materials Engineering***, ensuring alignment with course outcomes and program accreditation standards.
- Facilitated experiential learning by guiding students through laboratory assignments and hands-on projects in ***Additive Manufacturing***; collaborated with faculty and learners to implement visual, simulation-based, and real-world learning strategies that enhanced student engagement and comprehension.

INDUSTRIAL EXPERIENCE

Graduate Intern **May 2023 – Aug 2023**
NXP Semiconductors, Austin, TX

- Developed a thermal simulation model that improves the current setup for testing devices.
- Investigated 3d printing material choices that can withstand high temperature and hold 20g of heat sink load in a vertical PCB used for 5G wireless cell repeaters.
- Designed testing strategies for a new material pogo pin socket that are potential replacement for testing high performance devices.

Graduate Mechanical R&D Intern **May 2022 - Aug 2022**
Intel Corporation, Chandler, AZ

- Tested pins & solder balls interaction to compare and conclude on better performance pins.
- Automated material testing tool (Instron) to adapt to pin map and perform compressive stress.
- Tested sockets on PCB with various pads to compare & summarize their performance.

RECENT PUBLICATIONS

1. Preparation of Super-hydrophobic Surface on Stainless Steel: A Review. International Journal of Engineering Materials and Manufacture, 10(2), 44-73. **July 2025.**
2. Beyond 3D Printing: Multi-Axis CNC Machining of TPMS Geometries for Sustainable Water Generation. Journal of Manufacturing Processes. **Submitted- under review.**
3. Regression Analysis of Triply Periodic Minimal Surface (TPMS) Models to Achieve Multi-Objective Optimization. *Appl. Sci.* **April 2025.**
4. The Effect of Macroscopic and Microscopic Patterns of Stainless-steel Surface on the Efficiency of Dropwise Condensation and Precipitation, *IJEMM*, vol. 6, no. 3, pp. 163–169, **Jul. 2021.**
5. A Review of Super-Cool Passive Heat Radiating Materials. SAMPE neXus 2021, **June 29 - July 1, 2021**.
6. Achieving Reliable Automated Off-grid Indoor Vertical Farming by FMEA and Digital Twin, the 19th International Conference on Embedded Systems, Cyber-physical Systems, & Applications. **2021**

HONORS, AWARDS & ACHIEVEMENTS

Doctoral Research Support Fellowship **2025**
Awarded for crafting a strong dissertation proposal and detailed research budget.
Graduate College Scholarship, Science and Engineering **2022, 2018**
Recognized for academic excellence, creativity, and leadership potential.
Student Government Scholarship **2020 –2022**
Awarded for academic responsibility and positive campus representation.
Spring Bootcamp, People's Choice Award **2021**
Recognized for an innovative business pitch: *"Water from Air."*
SME AeroDef Graduate Research Champion **2020**
First-place winner in graduate speed presentation; awarded $500.
Doctoral Merit Fellowship **2020**
Received $9,000 for outstanding academic performance and research promise.
Academic Excellence & Dean's List **2020**
Achieved a 4.0 GPA during master's coursework in engineering.
Robert M. Seese Award **2019**
Honored for graduate school outreach reaching over 9,000 students.

COMMUNITY ACTIVITY & LEADERSHIP

President & Treasurer- Society of Manufacturing Engineers (SME) **2019-2021**

- Acquired 50+ new members, won 3rd place in recruitment and fundraised $1200 in a t-shirt sale.
- Organized guest speaker events, factory tours, and resume review workshops.

Mentor- Global Grad Mentor Groups of Texas State University **2019**

- Mentored 7 new graduate students into US higher study culture and networking.
- Worked with peers to compile and prioritize academic resources for multi-disciplinary students.