Computational Nuclear Engineering Degree Plan
Accepted to the Nuclear and Radiation Engineering (NRE) Area within Mechanical Engineering (ME)
Student Located in Austin, TX who is seeking a PhD and has no MS
Starting in the Fall 2023

ME Graduation Requirements:
- CSE classes: https://www.oden.utexas.edu/graduate-studies/courses/
- ME classes: https://nuclear.engr.utexas.edu/current-students/courses

Degree Plan (~4 years):
- Fall 2023
  - CSE 389C — Mathematical Modeling in Sci. and Eng. I — Robert Moser
  - CSE 383C — Numerical Analysis: Linear Algebra — Per-Gunnar Martinsson
  - ME 388G — Nuclear Radiation Shielding — William Charlton
- Spring 2024
  - CSE 389D — Mathematical Modeling in Sci. and Eng. II — Feliciano Guistino
  - CSE 383L — Numerical Analysis: Differential Equations — Bjorn Engquist
  - ME 338D — Nuclear Reactor Theory I — Clarno
- Summer 2024 — Internship
- Fall 2024
  - ME389C — Neutron Environmental Protection — Sheldon Landsberger
  - ME 388F — Computational Methods in Radiation Transport — Clarno
  - CSE 386M — Functional Analysis in Theoretical Mechanics — Leszek Demkowicz
- January 2025: — Qualifying Exam for Doctoral Candidacy
- Spring 2025
  - ME 389F — Nuclear Fuel Cycle — William Charlton
  - ME 380M — Research — Clarno
  - Elective Course
  - ME 397 — Nuclear Security System Design — William Charlton
  - ME 390T — Nuclear Radiochemistry — Sheldon Landsberger
  - ME 388D — Design of Nuclear Systems — Clarno
  - CSE 382M — Machine Learning and Data Sciences — Rachel Ward
  - CSE 393F — Finite Element Methods — Mary Wheeler
  - CSE 392 — Parallel Algorithms in Scientific Computing — George Biros
  - CSE 380 — Tools and Techniques of Computational Sci. — Karl Schultz
  - CSE 397 — Nonlinear Static and Dynamic Finite Elements
  - CSE 393N — Numerical Methods for Flow and Transport — Robert Moser
  - CSE 397 — Stability and Multiscale Methods in CFD — Thomas Hughes
  - CSE 397 — Computational Methods for Inverse Problems — Omar Ghattas
  - CSE 397 — Validation and UQ in Computational Models — Robert Moser
  - CSE 397 — Nonlinear Static/Dynamics FEA — Thomas Hughes
  - CSE 385M — Fast Algorithms: Theory and Practice — Per-Gunnar Martinsson
  - CSE 385N — Design and Analysis of Experiments — Bindu Viswanathan
  - CSE 393H — Advanced Theory of Finite Elements — Leszek Demkowicz
  - STA 380 — Bayesian Deep Learning — Mingyuan Zhou
  - M 390 — Coding Theory
- Summer 2025 — Internship
- Fall 2025
  - Elective Course
  - ME 680M — Research — Clarno
- January 2026
  - PhD Proposal Defense
- Spring 2026
  - ME 980M — Research — Clarno; or 6 hours + Elective Course
- Summer 2026 — Internship
- Fall 2026

- o ME 399W   Dissertation Writing   Clarno
- o ME 680M   Research   Clarno; or 3hours + Elective Course
- Spring 2027
  - o ME 399W   Dissertation Writing   Clarno
  - o ME 680M   Research   Clarno; or 3hours + Elective Course
- May 2027
  - o Graduation