

Requirements for Certificate in Nuclear Engineering

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For Pitt undergraduate students majoring in engineering or science, we offer a Certificate in Nuclear Engineering. A minimum 2.5 GPA is required for students to participate in the certificate. Students must obtain a GPA of at least 2.5 for the courses taken. To earn the certificate, students are required to complete satisfactorily the following three (3) classes,

- ENGR 1700: Introduction to Nuclear Engineering
- ENGR 1701: Fundamentals of Nuclear Reactors
- ENGR 1702: Nuclear Plant Technology

plus two (2) degree specific courses. Students should select two (2) courses from the list below that is appropriate to their degree of study.

Bioengineering

- BIOENG/IE 1061: Human Factors Engineering
- BIOENG 1311: Hemodynamics and Biotransport
- BIOENG 1380: Medical Imaging Systems I
- BIOENG 1531: Fundamentals of Biochemical Engineering
- BIOENG 1532: Bioseparation
- BIOENG 1810: Biomaterials and Biocompatibility

Chemical Engineering

- CHE 0200: Thermodynamics
- CHE 0300: Transport Phenomena
- CHE 0400: Reactive Process Engineering
- CHE 0500: Systems and Dynamics
- CHE 0600: Design

Civil Engineering

- CEE 1340: Design of Concrete Structures I
- CEE 1514: Environmental Impact Assessment
- CEE 2340: Design of Concrete Structures II
- CEE 2343: Prestressed Concrete

Electrical and Computer Engineering

- ECE 1150: Introduction to Computer Networks
- ECE 1160: Introduction to Embedded System Design
- ECE 1673: Linear Control Systems
- ECE 1769: Power Systems Analysis 1

Engineering Science

Engineering Science majors can choose the Nuclear Energy Concentration.

Industrial Engineering

- ENGR 1500: Ethical Dilemmas—Balancing Cost, Schedule, and Risk
- IE 1062: Data Mining
- IE 1076: Total Quality Management
- IE 1086: Decision Modeling
- IE 1089: Rapid Prototyping and Reverse Engineering
- IE 1091: Unstructured Problem Solving

Mechanical Engineering and Materials Science

- MEMS 1030: Material Selection
- MEMS 1033: Fracture Mechanics for Manufacturing and Performance
- MEMS 1045: Automatic Controls
- MEMS 1047: Finite Element Analysis
- MEMS 1052: Heat and Mass Transfer
- MEMS 1063: Phase Transformations in Multi-Component Materials
- MEMS 1065: Thermal Systems Design
- MEMS 1070: Mechanical Behavior of Materials
- MEMS 1071 Applied Fluid Dynamics

Non-engineering Math and Science Majors

Non-engineering math and science majors (e.g., Math, Chemistry, Physics) must complete the three (3) core Nuclear Engineering courses, provide the Director of the Nuclear Engineering a proposal for two additional courses in the student's major and obtain the Director's signed approval. The ~1-page proposal must include the following:

- two (2) courses from the student's major
- the catalog description of the two (2) courses
- a short statement on how these two (2) courses complement the three (3) core nuclear courses and/or apply to nuclear engineering.

This proposal will be signed by the Director and kept on record by the MEMS Department.