

Minors

Mechanical Engineering
Materials Science Engineering



Minor in Materials Science and Engineering

The Department of Mechanical Engineering and Materials Science offers a minor for students in the School of Engineering who are not currently majoring in Materials Science and Engineering. The minor consists of five (5) courses for a total of fifteen (15) units. Students must obtain a GPA of at least 2.0 for the courses taken.

Required core courses:

- ENGR 0022: Materials Structure and Properties (3 units)
Pre-req: MATH 0230 and PHYS 0175
- MEMS 0040: Materials and Manufacturing (3 units)
Pre-req: ENGR 0022
- MEMS 1053: Structure of Crystals and Diffraction (3 units)
Pre-req: ENGR 0022
- MEMS 1059: Phase Equilibria in Materials (3 units)
Pre-req: ENGR 0022 and MEMS 0051
- MEMS 1063: Phase Transformation and Microstructure Evolution (3 units)
Pre-req: MEMS 1053 and MEMS 1059

Minor in Mechanical Engineering

The Department of Mechanical Engineering and Materials Science is offering a minor for students in the School of Engineering who are not currently majoring in Mechanical Engineering. A total of fifteen (15) units required to complete the minor. Students must obtain a GPA of at least 2.0 for the courses taken.

Required core courses:

To provide students with a background in mechanical design the following two courses are required for the Mechanical Engineering minor:

- MEMS 0024: Intro. to Mechanical Engineering Design (3 units)
Pre-req: ENGR 0011
- MEMS 1028: Mechanical Design 1 (3 units)
Pre-req: ENGR 0145

Options:

Students must choose one of the four options to complete the courses required for the minor.

Thermal-Fluids option:

- MEMS 0051: Introduction to Thermodynamics (3 units)
Pre-req: PHYS 0175 and CHEM 0960 *Co-req: MATH 0290*
- MEMS 0071: Introduction to Fluid Dynamics (3 units)
Pre-req: PHYS 0175 and CHEM 0960 *Co-req: MATH 0290*

And one of the following:

- MEMS 1051: Applied Thermodynamics (3 units)
Pre-req: MEMS 0051
- MEMS 1071: Applied Fluid Dynamics (3 units)
Pre-req: MEMS 0071

Dynamic Systems option:

- MEMS 1014: Dynamic Systems (3 units)
Pre-req: MEMS 0031
- MEMS 1015: Rigid-Body Dynamics (3 units)
Pre-req: MATH 0240 and ENGR 0135
- MEMS 1045: Automatic Controls or ECE controls course (3 units)
Pre-req: MEMS 1014

Mechanical Design option:

- MEMS 1029: Mechanical Design 2 (3 units)
Pre-req: MEMS 0024 and MEMS 1028
- MEMS 1033: Fracture Mechanics for Manufacturing and Performance (3 units)
Pre-req: ENGR 0022 and MEMS 1028
- MEMS 1047: Finite Element Analysis (3 units)
Pre-req: MEMS 1028

Mechanical Measurements option:

- MEMS 1014: Dynamic Systems (3 units)
Pre-req: MEMS 0031
- MEMS 1041: Mechanical Measurements 1 (3 units)
Pre-req: ENGR 0145 and MEMS 0031 *Co-req: MEMS 1014*
- MEMS 1042: Mechanical Measurements 2 (3 units)
Pre-req: MEMS 1041

Minor Application

Check one: Materials Science and Engineering _____ Mechanical Engineering _____

Name _____ ID# _____

Local Address _____ (street) Local Phone (_____) _____

_____ (city) _____ (state) _____ (zip code)

Permanent Address _____ (street) Permanent Phone (_____) _____

_____ (city) _____ (state) _____ (zip code)

Email: _____

Major _____

Academic Standing: Sophomore _____ Junior _____ Senior _____

Please read the following statement and sign

I understand that my academic records will be evaluated for this application process, therefore, I authorize for all of my academic records to be made available as necessary.

_____ (signature)

_____ (date)

Submit completed application form to:

Undergraduate Administrator
636 Benedum Hall
Pittsburgh, PA 15261
(412) 624-9780