

Materials Science and Technology Minor

Materials Science and Technology Minor

This is an interdisciplinary minor that is jointly offered by the Departments of Chemistry and Biochemistry, Physics, and Applied Engineering.

Materials science and the use of materials in technology requires the use of concepts from multiple disciplines. This interdisciplinary minor gives students the broad foundation they need to learn about the science of materials and an introduction to how these scientific principles are used in the development and application of materials in new technology. This minor is complementary preparation to a major in Chemistry and Biochemistry, Physics or Manufacturing Engineering Technology for students who are interested in working in industry or going on to advanced study in materials science.

Required:

Choose one of the following three options: ⁺ **5-8**

Option 1 Chemistry (8 hours)

CHEM 1110 General Chemistry I

CHEM 1120 General Chemistry II

OR

Option 2 Chemistry (5 hours)

CHEM 1130 General Chemistry I-II

OR

Option 3 Chemistry/Technology (7 hours)

CHEM 1020 Chemical Technology [&]

TECH 3127 Applied Thermodynamics [&]

Additional requirements (all three options)

Choose one of the following sets of Physics courses: **8**

PHYSICS 1511 General Physics I
& PHYSICS 1512 and General Physics II

OR

PHYSICS 1701 Physics I for Science and
& PHYSICS 1702 Engineering
and Physics II for Science and
Engineering

Additional required (all three options)

CHEM 4200/5200 Nanoscience ^{*} **3**
or PHYSICS 4200/5200 Nanoscience

TECH 2072 Engineering Materials **3**

Electives (all three options) - choose one of the following: **3-4**

Note: in order to earn the Materials Science and Technology minor, the elective course students take for the minor cannot be a required course for their primary major.

CHEM 2110 Descriptive Inorganic
Chemistry ^{*}

CHEM 2320 Chemical Analysis [#]

CHEM 4210/5210 Nanotechnology ^{*}
or PHYSICS 4210/5210 Nanotechnology

PHYSICS 4750/5750 Physics of Modern Materials [#]

TECH 3132/5132 Metallurgy and Phase
Transformation

Total Hours **22-26**

+ There are additional prerequisite courses that must be taken along with the required courses in some options – choose the option that aligns with the courses for your major.

Prerequisites for TECH 3127: TECH 1024; MATH 1150 or MATH 1420.

Prerequisite or corequisites for PHYSICS 1701: MATH 1420.

Prerequisite or corequisites for PHYSICS 1702: MATH 1421.

^{*} Students who have declared a Materials Science and Technology Minor may take these courses after completing CHEM 1020 Chemical Technology and TECH 3127 Applied Thermodynamics in place of the usual CHEM 1120 General Chemistry II prerequisite.

[&] These courses are taken by students in the Manufacturing Engineering Technology major.

[#] Prerequisite for CHEM 2320: CHEM 1120 or CHEM 1130.
Prerequisite for PHYSICS 4750/5750: PHYSICS 4100/5100 and PHYSICS 4110/5110.

Related Programs

- Chemistry B.A. or B.S.
- Materials Science and Engineering B.S.
- Materials Science Engineering Technology B.S.
- Physics B.A.