

BESA-Materials Science & Engineering

Fall 2023

Bachelor of Engineering Studies and Arts (BESA)

College of Engineering (ENG) Concentration in Materials Science & Engineering

99 units (minimum)

Advisor: [Paige Houser](#), WEH 3317, 412-268-3357, phouser@andrew.cmu.edu

Mathematics & Science Prerequisites

21-120	Differential and Integral Calculus (Gen Ed)	10
21-122	Integration and Approximation (Gen Ed)	10
21-254	Linear Algebra and Vector Calculus for Engineers	11
21-260	Differential Equations	9
15-110	Principles of Computing	10
33-141	Physics I for Engineering Students (Gen Ed)	12
33-142	Physics II for Engineering and Physics Students	12
09-105	Introduction to Modern Chemistry I	10

Materials Science & Engineering Courses

72 units

27-100	Engineering the Materials of the Future (Freshman year; co-req: 21-120, 33-141)	12
xx-xxx	2 nd Introduction to Engineering course, student's choice	12
27-211	Structure of Materials * (Fall, Sophomore year)	6
27-212	Defects in Materials * (Spring, Sophomore year)	6
27-215	Thermodynamics of Materials (Fall, Sophomore year; co-req: 27-100, 21-259)	12
27-216	Transport in Materials (Spring, Sophomore year; prereq: 27-215)	9
27-227	Phase Relations and Diagrams * (Spring, Sophomore year)	9
27-357	Introduction to Materials Selection (Spring, Sophomore year)	6

* In consultation with the concentrations advisor, students may choose to complete the version of the course with lab component.

Electives

27 units minimum

Choose 3 elective courses in MSE and/or ENG with prerequisites in consultation with the concentration advisor.

BESA Free Electives

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement.