BS Material Science & Engineering Course Map 2026-2027

Semester 1 and 2

MATH 2413 or 2417
Calculus I
- ALEKS 80% or MATH 2312

MATH 2414 or 2419
Calculus II
- MATH 2413 or 2417

ECS 1100
Intro to ENGR & CS

PHYS 2325 and PHYS 2125
Mechanics and Lab
- MATH 2413 or 2417
- MATH 2414 or 2419

MSEN 1100
Materials in the Modern World

MSEN 1300
Intro to Materials Sci & Engr.

ECS 1210
Foundations of ENGR and CS I

CHEM 1312 and CHEM 1112
Gen Chemistry II and Lab
- CHEM 1311/1111

CHEM 1311 and CHEM 1111
Gen Chemistry I and Lab

ECS 1220
Foundations of ENGR and CS II
- ECS 1210

Core

Semester 3 and 4

MATH 2415**
Calculus of Several Variables
- MATH 2414 only

ENGR 2300
Linear Algebra for Engineers
- MATH 2413 or 2417

PHYS 2326 and PHYS 2126
Electromagnetism & Waves and Lab
- PHYS 2325/2125
- MATH 2414 or 2419

MSEN 3251
Materials Characterization and Thermodynamics Lab
- PHYS 2326 or 2422
- CHEM 1312
- MSEN 2310

MSEN 2310
Mechanical Properties of Materials
- MSEN 1300
- MATH 2414 or 2417

MSEN 3311
Thermodynamics of Materials
- MATH 2415 or 2419
- MSEN 1300
- CHEM 1312
- PHYS 2325

MSEN 2111
Mechanical Properties of Materials Lab
- MSEN 2310

MSEN 3312
Materials Characterization
- MATH 2415 or 2419
- PHYS 2325 or 2421
- CHEM 1312

Core

Free Elective

Core

Semester 5 and 6

MSEN 3313
Physical Metallurgy
- MSEN 3311
- MSEN 2310

MSEN 3320
Electrical, Optical, & Magnetic Properties of Materials
- MATH 2415 or 2419
- PHYS 2326 or 2422
- CHEM 1311

MSEN 3252
Metals and Ceramics Lab
- MSEN 3251
- MSEN 3312

MSEN 3253
Electronic, Optical and Magnetic Properties of Materials Lab
- MSEN 3251

MSEN 3314
Ceramics & Glasses
- MSEN 3311

MSEN 3316
Polymer Science & Engineering
- MSEN 3311

ECS 2390
Professional & Technical Communication
- RHET 1302

MSEN 3325
Mathematical Methods in MSE
- ECS 1210
- ECS 1220
- MATH 2415 or 2419

MSEN 3324
Data Analysis and Statistics in Materials Science and Engineering
- ECS 1210
- ECS 1220
- MATH 2415 or 2419

Free Elective (4hrs) (depending on math sequence-see

Core

Semester 7 and 8

MSEN 4301
Materials Selection and Design
- Atleast two of MSEN 3313,
- ECS 2390
- MSEN 3252
- MSEN 3320

MSEN 4402
Senior Design in MSE
- MSEN 4301
- ECS 2390

Technical Elective
MSE Elective I
- See catalog

Technical Elective
MSE Elective II
- See catalog

MSEN 3317
Kinetics & Phase Transformations
- MSEN 3311

Free Elective

Core

Core

Core

Core

First Year Required; Transfer See Advisor

Critical Path

Prerequisite

Pre - or Corequisite

GRADE REQUIREMENTS
C or better required in all courses that are prerequisites
**** MATH 2415**
Taken ONLY after MATH 2414. Not required for students who complete MATH 2417/2419

FAST TRACK: Interested in taking graduate courses as an undergrad? Speak to an advisor or click here to learn more.

REMAINING CORE CURRICULUM

RHET 1302	GOVT 2305	GOVT 2306	American History (060)	American History (060)	Language, Philosophy and Culture (040)	Creative Arts (050)	Social and Behavioral Sciences (080)

ERIK JONSSON SCHOOL
OF ENGINEERING AND COMPUTER SCIENCE