

2017-2018 B.S. in Materials Engineering

Electronic Materials Option Curriculum

FRESHMAN YEAR	UNITS
1st Quarter	
Chemistry and Biochemistry 20A—Chemical Structure ¹	4
English Composition 3—English Composition, Rhetoric, and Language	5
Materials Science and Engineering 10—Freshman Seminar: New Materials ²	1
Mathematics 31A—Differential and Integral Calculus ¹	4
2nd Quarter	
Chemistry and Biochemistry 20B/20L—Chemical Energetics and Change/General Chemistry Laboratory ¹	7
Mathematics 31B—Integration and Infinite Series ¹	4
Physics 1A—Mechanics ¹	5
3rd Quarter	
Mathematics 32A—Calculus of Several Variables ¹	4
Physics 1B—Oscillations, Waves, Electric and Magnetic Fields ¹	5
HSSEAS GE Elective ³	4
SOPHOMORE YEAR	
1st Quarter	
Materials Science and Engineering 104—Science of Engineering Materials ²	4
Mathematics 32B—Calculus of Several Variables ¹	4
HSSEAS GE Elective ³	5
2nd Quarter	
Materials Science and Engineering 90L—Physical Measurement in Materials Engineering ²	2
Mathematics 33A—Linear Algebra and Applications ¹	4
Physics 1C—Electrodynamics, Optics, and Special Relativity ¹	5
HSSEAS GE Elective ³	5
3rd Quarter	
Civil and Environmental Engineering M20 (Introduction to Computer Programming with MATLAB) or Computer Science 31 (Introduction to Computer Science I) ²	4
Mathematics 33B (Differential Equations) or Mechanical and Aerospace Engineering 82 (Mathematics of Engineering) ¹	4
Mechanical and Aerospace Engineering 101—Statics and Strength of Materials ²	4
HSSEAS Ethics Course	4
JUNIOR YEAR	
1st Quarter	
Electrical and Computer Engineering 100—Electrical and Electronic Circuits ²	4
Materials Science and Engineering 110/110L—Introduction to Materials Characterization A/Laboratory ²	6
Materials Science and Engineering 130—Phase Relations in Solids ²	4
HSSEAS GE Elective ³	5
2nd Quarter	
Electrical and Computer Engineering 101A—Engineering Electromagnetics ²	4

Materials Science and Engineering 120 (Physics of Materials) or Electrical and Computer Engineering 2 (Physics for Electrical Engineers) ²	4
Materials Science and Engineering 122—Principles of Electronic Materials Processing ²	4
Materials Science and Engineering 131/131L—Diffusion and Diffusion-Controlled Reactions/Laboratory ²	6
3rd Quarter	
Materials Science and Engineering 121/121L—Materials Science of Semiconductors/Laboratory ²	6
Materials Science and Engineering 132—Structures and Properties of Metallic Alloys ²	4
Electronic Materials Elective (Materials Science and Engineering 150—Introduction to Polymers or 160—Introduction to Ceramics and Glasses) ^{2,4}	4
Technical Breadth Course ³	4
SENIOR YEAR	
1st Quarter	
Electrical and Computer Engineering 121B—Principles of Semiconductor Device Design ²	4
Upper-Division Mathematics Course ^{1,5}	4
Technical Breadth Course ³	4
2nd Quarter	
Electronic Materials Elective ^{2,4}	4
Electronic Materials Laboratory Course ^{2,4}	2
HSSEAS GE Elective ³	5
Technical Breadth Course ³	4
3rd Quarter	
Materials Science and Engineering 140—Materials Selection and Engineering Design ²	4
Electronic Materials Elective ^{2,4}	4
Electronic Materials Laboratory Course ^{2,4}	2
TOTAL	180

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1. Counts as Mathematics and Basic Sciences for ABET, total units Mathematics and Basic Sciences = 54.
 2. Counts as Engineering Concepts for ABET, total units Engineering Concepts = 81.
 3. Students should contact the Office of Academic and Student Affairs for approved lists in the categories of technical breadth and HSSEAS GE (see page 22 for details).
 4. See counselor in 6426 Boelter Hall for details.
 5. See page 98 for list of approved mathematics courses.