

2019-2020 B.S. in Materials Engineering

Electronic Materials Option Curriculum

Courses	Units
FRESHMAN YEAR	
<i>1st Quarter</i>	
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
<i>2nd Quarter</i>	
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
<i>3rd Quarter</i>	
Materials Science and Engineering 104 — Science of Engineering Materials ²	4
Mathematics 32A — Calculus of Several Variables ¹	4
Physics 1B — Oscillations, Waves, Electric and Magnetic Fields ¹	5
UCLA Samueli GE Elective ³	5
SOPHOMORE YEAR	
<i>1st Quarter</i>	
Materials Science and Engineering 110/110L — Introduction to Materials Characterization A/Laboratory ²	6
Mathematics 32B — Calculus of Several Variables ¹	4
Physics 1C — Electrodynamics, Optics, and Special Relativity ¹	5
<i>2nd Quarter</i>	
Electrical and Computer Engineering 101A — Engineering Electromagnetics ²	4
Materials Science and Engineering 90L — Physical Measurement in Materials Engineering ²	2
Materials Science and Engineering 122 — Principles of Electronic Materials Processing ²	4
Mathematics 33A — Linear Algebra and Applications ¹	4
<i>3rd Quarter</i>	
Civil and Environmental Engineering M20 (Intro to Computer Programming with MATLAB) or Computer Science 31 (Intro to Computer Science I) ²	4
Electrical and Computer Engineering 100 — Electrical and Electronic Circuits ²	4
Mathematics 33B (Differential Equations) or Mechanical and Aerospace Engineering 82 (Mathematics of Engineering) ¹	4
UCLA Samueli GE Elective ³	5
JUNIOR YEAR	
<i>1st Quarter</i>	
Electronic Materials Laboratory Course ²	2
Materials Science and Engineering 130 — Phase Relations in Solids ²	4
TOTAL	182

Courses	Units
Mechanical and Aerospace Engineering 101 — Statics and Strength of Materials ²	4
Technical Breadth Course ³	4
2nd Quarter	
Materials Science and Engineering 120 (Physics of Materials) ²	4
Materials Science and Engineering 131/131L — Diffusion and Diffusion-Controlled Reactions/Laboratory ²	6
UCLA Samueli GE Elective ³	5
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 ²	4
SENIOR YEAR	
1st Quarter	
Electrical and Computer Engineering 121B — Principles of Semiconductor Device Design	4
Technical Breadth Course ³	4
UCLA Samueli GE Elective ³	5
Upper-Division Mathematics Course ^{1,5}	4
2nd Quarter	
Electronic Materials Elective (Materials Science and Engineering 150 — Introduction to Polymers or 160 — Introduction to Ceramics and Glasses) ^{2,4}	4
Materials Science and Engineering 140A — Materials Selection and Engineering Design A ²	3
Technical Breadth Course ³	4
UCLA Samueli Ethics Course	4
3rd Quarter	
Electronic Materials Elective ^{2,4}	4
Electronic Materials Laboratory Course ^{2,4}	2
Materials Science and Engineering 140B — Materials Selection and Engineering Design B ²	3
UCLA Samueli GE Elective ³	4
TOTAL	182

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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 = 83.
 3. Students should contact the Office of Academic and Student Affairs for approved lists in the categories of technical breadth and GE (see page 23 for details).
 4. See counselor in 6426 Boelter Hall for details.
 5. See page 103 for list of approved mathematics courses.