



CLEMSON[®]

MATERIALS SCIENCE AND ENGINEERING

Curriculum for the BS in Materials Science and Engineering 2020-2021 Undergraduate Catalog

Freshman Year

First Semester

- 4 – CH 1010 General Chemistry I
- 3 – ENGL 1030 Composition and Rhetoric
- 2 – ENGR 1020 – Engineering Disciplines & Skills
- 4 – MATH 1060 – Calculus of One Variable I
- 3 – Arts and Humanities Requirement¹ *or*
3 – Social Science Requirement¹

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Second Semester

- 4 – CH 1020 General Chemistry II
- 3 – ENGR 1410 Programming & Problem Solving
- 4 – MATH 1080 Calculus of One Variable II
- 3 – PHYS 1220 Physics with Calculus I
- 3 – Arts and Humanities Requirement¹ *or*
3 – Social Science Requirement¹

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Sophomore Year

First Semester

- 3 – CH 2230 Organic Chemistry I
- 1 – CH 2270 Organic Chemistry Laboratory I
- 4 – MATH 2060 Calculus of Several Variables
- 3 – MSE 2100 Introduction to Materials Science
- 3 – PHYS 2210 Physics with Calculus II
- 3 – Arts and Humanities Requirement¹ *or*
3 – Social Science Requirement¹

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Second Semester

- 3 – CE 2010 Engineering Mechanics: Statics
- 3 – CH 2240 Organic Chemistry II
- 1 – CH 2280 Organic Chemistry Laboratory II
- 2 – ENGR 2080 Engineering Graphics and Machine Design *or*
2 – ECE 2070 Basic Electrical Engineering
- 4 – MATH 2080 Intro to Ordinary Differential Equations
- 3 – MSE 3100 Introduction to Metals and Ceramics Engineering**

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Junior Year

First Semester

- 2 – MSE 3010 Materials Analysis Laboratory I*
- 3 – MSE 3260 Thermodynamics of Materials*
- 3 – MSE 4150 Intro to Polymer Science & Engineering
- 1 – MSE 3450 Practice of Materials Engineering*
- 1 – MSE 3910 Fundamentals of Research
- 3 – STAT 4110 Statistical Methods for Process Dev and Control
- 3 – Arts and Humanities Requirement¹ *or*
3 – Social Science Requirement¹

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Second Semester

- 3 – IE 3840 Engineering Economic Analysis
- 2 – MSE 3020 Materials Analysis Laboratory II**
- 3 – MSE 3190 Materials Processing I**
- 3 – MSE 3270 Transport Phenomena**
- 3 – MSE 4020 Solid State Materials**
- 3 – MSE 4220 Mechanical Behavior of Materials**

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Senior Year

First Semester

- 3 – COMM 2500 Public Speaking
- 2 – ENGR 2080 Engineering Graphics and Machine Design *or*
2 – ECE 2070 Basic Electrical Engineering
- 2 – MSE 4910 Undergraduate Research *or*
3 – MSE 4070 Senior Capstone Design
- 3 – Tech Requirement²
- 3 – Tech Requirement²

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Second Semester

- 3 – Arts and Humanities Requirement¹ *or*
3 – Social Science Requirement¹
- 2 – MSE 4910 Undergraduate Research *or*
3 – MSE 4070 Senior Capstone Design
- 3 – Tech Requirement²
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14 or 15

*Offered only Fall terms **Offered only Spring terms **127 Total Semester Hours**

¹ See Policy on Humanities and Social Sciences for Engineering Curricula. Six of these credit hours must also satisfy the Cross-Cultural Awareness and the Science and Technology in Society General Education requirements.

² Students must complete 15 credits of technical electives, all of which must be at least 3-credit courses. Three of the courses must be 4000-level MSE courses. See catalog for complete details.