

# MATERIALS SCIENCE AND ENGINEERING

Courses highlighted below are available at Newberry College

Curriculum Example\*

## FRESHMAN YEAR

<p>_____ 4 CH 1010 General Chemistry</p> <p>_____ 3 ENGL 1030 Accelerated Composition</p> <p>_____ 2 ENGR 1020 Engineering Discipline and Skills<sup>1</sup></p> <p>_____ 4 MATH 1060 Calculus of One Variable I</p> <p>_____ 3 Gen Ed<sup>2</sup></p> <p>16</p>	<p>_____ 4 CH 1020 General Chemistry</p> <p>_____ 3 ENGR 1410 Programming and Problem Solving<sup>1</sup></p> <p>_____ 4 MATH 1080 Calculus of One Variable II</p> <p>_____ 3 PHYS 1220 Physics with Calculus I</p> <p>_____ 3 Gen Ed<sup>2</sup></p> <p>17</p>
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## SOPHOMORE YEAR

<p>_____ 3 CH 2230 Organic Chemistry</p> <p>_____ 1 CH 2270 Organic Chemistry Lab.</p> <p>_____ 3 MSE 2100 Introduction to Materials Science</p> <p>_____ 4 MATH 2060 Calculus of Several Variables</p> <p>_____ 3 PHYS 2210 Physics with Calculus II</p> <p>_____ 3 Gen Ed<sup>2</sup></p> <p>17</p>	<p>_____ 3 CE 2010 Statics</p> <p>_____ 3 CH 2240 Organic Chemistry</p> <p>_____ 1 CH 2280 Organic Chemistry Lab.</p> <p>_____ 2 ENGR 2080 Engr. Graphics &amp; Machine Design <i>OR</i></p> <p style="padding-left: 20px;">2 ECE 2070 Basic Electrical Engineering</p> <p>_____ 4 MATH 2080 Int. to Ordinary Differential Eqtns</p> <p>_____ 3 MSE 3100 Introduction to Metals and Ceramics</p> <p>16</p>
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## JUNIOR YEAR

<p>_____ 3 STAT 4110 Stat. Methods for Process Development &amp; Control</p> <p>_____ 2 MSE 3010 Materials Synthesis &amp; Fabrication Laboratory</p> <p>_____ 3 MSE 3260 Thermodynamics of Materials</p> <p>_____ 3 MSE 4150 Intro. to Polymer Sci. and Engr.</p> <p>_____ 1 MSE 4450 Practice of Materials Engineering</p> <p>_____ 1 MSE 4810 Undergraduate Research Fundamentals</p> <p>_____ 3 Gen Ed<sup>2</sup></p> <p>16</p>	<p>_____ 3 IE 3840 Engineering Economic Analysis</p> <p>_____ 2 MSE 3020 Materials Characterization Laboratory</p> <p>_____ 3 MSE 3190 Materials Processing I</p> <p>_____ 3 MSE 3270 Transport Phenomena</p> <p>_____ 3 MSE 4020 Solid State Materials</p> <p>_____ 3 MSE 4220 Mechanical Behavior of Materials</p> <p>17</p>
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## SENIOR YEAR

<p>_____ 3 COMM 2500 Public Speaking</p> <p>_____ 2 ECE 2070 Basic Electrical Engineering <i>OR</i></p> <p style="padding-left: 20px;">2 ENGR 2080 Engr. Graphics and Machine Design</p> <p>_____ 2 MSE 4910 Undergraduate Research</p> <p>_____ 6 Technical Requirement <sup>3</sup></p> <p>13</p>	<p>_____ 3 MSE 4070 Senior Capstone Design</p> <p>_____ 9 Technical Requirement <sup>3</sup></p> <p>_____ 3 Gen Ed<sup>2</sup></p> <p>15</p>
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**127 Total Semester Hours**

<sup>1</sup> ENGR 1070+1080 +1090 may be substituted for ENGR 1410, and ENGR 1050 + 1060 may be substituted for ENGR 1020.

<sup>2</sup> See policy on General Education coursework for Clemson University students. There are Six Gen Ed requirements for students pursuing the MSE major, but all 6 requirements could be met in 4 courses if planned appropriately. Please see advisor.

<sup>3</sup> See Advisor, Acalog or Degreeworks for full current list of Junior/Senior level technical electives for MSE majors.

\*See catalog for current curriculum at [catalog.clemson.edu](http://catalog.clemson.edu)

General Education Requirements						
LIT	Non-Lit	SS1	SS2	ENGR 5 <sup>th</sup>	CCA	STS
Other						
LIFE	Palmetto Fellows	Honors	Athlete	RiSE	ROTC	Med School