

# MATERIALS SCIENCE AND ENGINEERING

Courses highlighted below are available at Lander University

Curriculum Example\*

## FRESHMAN YEAR

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

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

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

_____ 3 COMM 2500 Public Speaking _____ 2 ECE 2070 Basic Electrical Engineering <i>OR</i> 2 ENGR 2080 Engr. Graphics and Machine Design _____ 2 MSE 4910 Undergraduate Research _____ 6 Technical Requirement <sup>3</sup> 13	_____ 3 MSE 4070 Senior Capstone Design _____ 9 Technical Requirement <sup>3</sup> _____ 3 Gen Ed <sup>2</sup> 15
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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