

BACHELOR OF SCIENCE IN MATERIALS AND SCIENCE ENGINEERING - FUNCTIONAL MATERIALS

Code	Title	Credit Hours
Wellness Requirement		
APPH 1040	Scientific Foundations of Health	2
	or APPH 10 The Science of Physical Activity and Health	
	or APPH 10 Flourishing: Strategies for Well-being and Resilience	
Core IMPACTS		
Institutional Priority		
CS 1371	Computing for Engineers	3
Mathematics and Quantitative Skills		
MATH 1552	Integral Calculus	4
Political Science and U.S. History		
HIST 2111	The United States to 1877	3
	or HIST 2111 The United States since 1877	
	or INTA 1200 American Government in Comparative Perspective	
	or POL 1101 Government of the United States	
	or PUBP 3000 American Constitutional Issues	
Arts, Humanities, and Ethics		
Any HUM		6
Communicating in Writing		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Technology, Mathematics, and Sciences		
PHYS 2211	Introductory Physics I ¹	4
PHYS 2212	Introductory Physics II ²	4
MATH 1551	Differential Calculus	2
MATH 1553	Introduction to Linear Algebra	2
Social Sciences		
Any SS		9
Field of Study		
CHEM 1211K	Chemical Principles I	4
CHEM 1212K	Chemical Principles II	4
COE 2001	Statics	2
MATH 2551	Multivariable Calculus	4
MATH 2552	Differential Equations	4
Major Requirements		
Ethics ³		
Economics ⁴		
MSE 1111	Introduction to Materials Science and Engineering	1
MSE 2001	Principles and Applications of Engineering Materials	3
MSE 2021	Materials Characterization	4
MSE 3001	Chemical Thermodynamics of Materials	3

MSE 3002	Structural Transformations in Metallic, Ceramic, and Polymeric Systems	3
MSE 4105	Deformation and Fracture of Materials	3
MSE 3015	Electrical, Optical, and Magnetic Properties	3
MSE 3021	Materials Laboratory I	2
MSE 3025	Statistics and Numerical Methods in Materials Science and Engineering	3
MSE 3210	Transport Phenomena	3
MSE 4022	Materials Laboratory II	2
MSE 4410	Capstone Engineering Design I	3
MSE 4420	Capstone Engineering Design II	3
	or MSE 4723 Interdisciplinary Capstone Design	
MSE 4775	Polymer Science and Engineering I: Formation and Properties	3

Other Requirements

CHEM 1315	Survey of Organic Chemistry for Engineers	3
COE 3001	Mechanics of Deformable Bodies	3
ECE 3710	Circuits and Electronics	2
ECE 3741	Instrumentation and Electronics Lab	1
ISYE 3025	Essentials of Engineering Economy	1

Functional Materials Concentration

MSE 4002	Ceramic Materials: Properties, Processing, Applications	3
MSE 4004	Materials in Electronic Applications	3
MSE 4330	Fundamentals of Nanomaterials and Nanostructures	3
Functional Materials Elective course ^{5,6}		3

Free Electives

Free Electives ⁷	5
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Total Credit Hours **129**

Pass-fail only allowed for Free Electives.

¹ If PHYS 2231 is taken, extra hour goes to Free Electives.

² If PHYS 2232 is taken, extra hour goes to Free Electives.

³ Any Georgia Tech course that has the Ethics attribute.

⁴ Students must complete one of the following to meet the Economics requirement: ECON 2100, ECON 2101, ECON 2105, ECON 2106. This course may also be applied to the Core IMPACTS Social Science area.

⁵ For students wishing to gain more knowledge in Functional Materials one of the following courses are recommended: MSE 4754, MSE 4755, MSE 4759, MSE 4766, PHYS 3143, PHYS 4262.

⁶ Students may meet this requirement by taking ME 1670; Any MSE courses EXCEPT MSE 3720, MSE 3300, MSE 2698/MSE 2699/MSE 4698/MSE 4699.

If a student completes the Research Option, they can use the combination of LMC 4701 and LMC 4702 and MSE 2699/MSE 4699 to meet this requirement.

⁷ MATH 1113 and PHYS 2XXX(AP credit) are not allowed.