

Materials Science and Engineering

Suggested Program of Study 2024 - 2025

FIRST YEAR

Fall 12 hours

CHM 2045C Chemistry Fundamentals I	4 hrs
(CHM 1025 or Placement Exam)	
MAC 2311C Calculus w/ Analytic Geometry I	4 hrs
(MAC 1140 & MAC 1114 or Placement exam)	
ENC 1101 Composition I	3 hrs
EGS 1006C Intro to the Engineering Profession	1 hr

Spring 16 hours

CHM 2046/L Chemistry Fundamentals II w/Lab	4 hrs
(CHM 2045C & MAC 1105)	
MAC 2312 Calculus w/ Analytic Geometry II	4 hrs
(MAC 2311C)	
ENC 1102 Composition II	3 hrs
(ENC 1101)	
PHY 2048/L Gen Physics using Calc. I w/Lab	4 hrs
(MAC 2311C)	
EGN 1007C Engineering Concepts & Methods	1 hr
(EGS 1006C)	

Summer 10 hours

MAC 2313 Calculus w/ Analytic Geometry III	4 hrs
(MAC 2312)	
Communication Foundation - GEP 3	3 hrs
Social Foundation - GEP 10	3 hrs

SECOND YEAR

Fall 13 hours

CHM 2210 Organic Chemistry I	3 hrs
(CHM 2046)	
PHY 2049/L Gen Physics using Calc. II w/Lab	4 hrs
(PHY 2048 & MAC 2312)	
EGN 3365 Structure & Prop. of Materials	3 hrs
(CHM 2045C or CHM 1440 & MAC 2312)	
EGN 3211 Engineering Analy. & Compu.	3 hrs

Spring 15 hours

MAP 2302 Ordinary Differential Equations I	3 hrs
(MAC 2313)	
EMA 3012C Exp. Techniques in Materials I	3 hrs
(EGN 3365 or EMA 3706)	
EMA 3102 Thermodynamics of Materials	3 hrs
(EGN 3365/EMA 3706, MAC 2313, & PHY2049/L)	
[co-req: MAP 2302]	
EMA 3124 Design & Selection of Materials	3 hrs
(EGN 3365 or EMA 3706)	
EGN 3373 Principles of Electrical Engineering	3 hrs
(PHY 2049C) [Co-Req: MAP 2302]	

Summer 9 hours

STA 3032 Prob. & Stats for Engrs. (MAC 2312)	3 hrs
Social Foundation - GEP 9	3 hrs
Historical or Cultural Foundation - GEP 6	3 hrs

THIRD YEAR

Fall 12 hours

EMA 3000 Engineering Polymeric Materials	3 hrs
(EMA 3102 & CHM 2210)	
EMA 4513 Structures of Materials	3 hrs
(EGN 3365 or EMA 3706)	
EMA 4223 Fund. of Mech. Behav. of Mats.	3 hrs
(EGN 3365 or EMA 3706)	
EMA 4307 Kinetics of Materials	3 hrs
(EMA 3102)	

Spring 12 hours

EMA 4115 Transport Phenomena of Mats.	3 hrs
(EMA 4307)	
EMA 4125 Phase Transformations and Microstructural Development in Materials	3 hrs
(EGN 3365, EMA 3000, & EMA 4513)	
EMA 4013C Exp. Techniques in Materials II	3 hrs
(EMA 3012C & EMA 4223)	

Select 1:

CHM 2211 Organic Chemistry II (CHM 2210)	3 hrs
PHY 3101 Gen Physics using Calc. III	3 hrs
(MAC 2313 & PHY 2049C or PHY 2054)	
EGN 3310 Engineering Anylysis-Statics	3 hrs
(MAC 2311C & PHY 2048C)	

FOURTH YEAR

Fall 15 hours

EMA 4915 Materials Senior Design I	3 hrs
(EMA 4115, EMA 4013C, & EMA 4125)	
EMA 4602C Materials Processing Lab	3 hrs
(EMA 3012C & EMA 3124)	
EMA 4413 Fund. of Electronic Materials	3 hrs
(EGN 3365 or EMA 3706 and EGN 3373)	
Technical Elective	3 hrs
Technical Elective	3 hrs

Spring 14 hours

EMA 4916 Materials Senior Design II	3 hrs
(EMA 4915)	
EMA 4009 Materials in Society	2 hrs
(EGN 3365, EMA 3000, & EMA 4513)	
Life Science Foundation - GEP 12	3 hrs
Historical Foundation - GEP 4	3 hrs
Cultural Foundation - GEP 5	3 hrs