Materials Science & Engineering (BS) (14MSEBS)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chemistry, A Molecular Science[1]	3	CH 201 Chemistry, A Quant Science	3
CH 102 General Chemistry Lab[1]	1	CH 202 Quantitative Chemistry Lab	1
E 101 Intro. to Engr. & Problem Solving[1,2]	1	MA 241 Calculus II[1]	4
E 115 Intro to Computing Environ[1,2]	1	PY 205 Physics for Engineers & Scientists I[1]	3
ENG 101 Academic Writing and Research[1,2]	4	PY 206 Physics for Engineers & Scientists I Lab[1]	1
MA 141 Calculus I[1]	4	HES_***Health & Exercise Studies Course*	1
EC 205 Economics (or EC 201 or ARE 201)*	3	E 102 Engineering in the 21st Century (GEP-IP)	2
	17		15

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
MSE 201 Structure & Prop. of Engr. Materials[2]	3	MSE 255 Exp Meth Struct Analysis of Matls	2
ST 370 Prob. and Statistics for Engineers	3	MSE 260 Math Methods for Material Engrs.	3
MA 242 Calculus III	4	MSE 270 MSE Seminar	1
PY 208 Physics for Engineers & Scientists II	3	CH 220 Intro Organic Chemistry	4
PY 209 Physics for Engineers & Scientists II Lab	1	MA 341 Applied Differential Equations I	3
HES_***Health & Exercise Studies Course*	1	*** *** GEP Requirement*	3
	15		16

Junior Year

Fall Semester	Credit	Spring Semester	Credit
MSE 300 Structure of Materials at Nanoscale	3	MSE 355 Elect, Mag & Opt Prop of Materials	3
MSE 301 Intro to Thermodynamics of Matls	3	MSE 360 Kinetic Process in Materials	3
MSE 320 Intro to Defects in Solids	3	MSE 370 Microstructure of Inorganic Materials	3
MSE 335 Exp Meth Analysis of Matls Prop.	2	MSE 380 Microstructure of Organic Materials	3
Technical Elective [3,4,5]	3	*** ***Engineering Elective[3,5]	3
*** *** GEP Requirement*	3		
	17		15

Senior Year

Fall Semester	Credit	Spring Semester	Credit
MSE 420 Mechanical Prop of Materials	3	MSE 470 Mat. Sci & Eng. Design Project	3
MSE 423 Intro. to Materials Eng. Design	1	MSE 480 Materials Forensics & Degradation	3
ENG 331 Technical Writing (or ENG 333)	3	*** ***Technical Elective [3,4,5]	3
*** *** MSE Processing Elective[5]	3	*** *** GEP Requirement*	3
*** *** Technical Elective[3,4,5]	3	*** *** GEP Requirement*	3
*** *** GEP Requirement*	3		
	16		15

Minimum Credit Hours Required for Graduation*: **126**

Major/Program requirements and footnotes

[1] Courses required for Change of Degree Audit (CODA). CH 101, 102; MA 141, 241; PY 205, 206 must be completed with a C or higher.
[2] Minimum grade of C-, E 115 requires satisfactory completion (S).
[3] Only 1 advisor approved MSE 490 (special topics) course may be used to fulfill an engineering or technical elective.
[4] Choose any course from the following list: BCH 451, CH 221, CH 223, CH 315, CH 401, CH 437, MA 305, MA 351, MA 401, MA 402, MA 405, MEA 463, PY 328, PY 407, PY 411, PY 412, PY 414, PY 415, PY 463, ST 370, CE 214 or MAE 206, MAE 208, CE 313 or MAE 214, CSC 200, ECE 331, ISE 311, MSE 350, MSE(NE) 409, NE 202, TE 205, CHE 455, MSE 440, MSE 445, MSE 455, MSE 456, MSE 460
[5] Choose a course from the following list: CH 455, MSE 440, MSE 445, MSE 455, MSE 456, or MSE 460.
[6] Ethics course must be chosen from the following list: IDS 201, STS 302, STS 304, STS/PHI 325, PHI 214, PHI 221, or PHI 375.

***General Education Program (GEP) requirements and GEP Footnotes**
To complete the requirements for graduation and the General Education Program, the following credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at: https://oucc.dasa.ncsu.edu/general-education-program/.

A. Mathematical Sciences – (6 credit hours – one course with MA or ST prefix)
Fulfilled as part of the Major requirements.
B. Natural Sciences– (7 credit hours – include one laboratory course or course with a lab)
Fulfilled as part of the Major requirements.
C. Humanities– (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list.

D. Social Sciences– (6 credit hours selected from two different disciplines/course prefixes)
Choose 3 credits from the University approved GEP Social Sciences course list in a discipline other than Economics. Economics 205 (or EC 201 or ARE 201), taken as part of the Major requirements, satisfies 3 credit hours needed to fulfill the GEP Social Sciences requirement.

E. Physical Education– (2 credit hours at least one 100-level Fitness and Wellness Course.

Choose from the University approved GEP Physical Education/Healthy Living course list.

F. Additional Breadth– (3 credits to be selected from the following checked University approved GEP course lists)

Choose one course from Humanities, Social Sciences, or Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list.

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **co-requisites** must be satisfied to complete the General Education Program requirements
I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the

approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite.

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite.
K. Foreign Language proficiency at the FL_102 level will be required for graduation.