# 2016 Curriculum in Materials Engineering Course Catalog (128 Credits Required)

## Freshman Year: Semester 1 (16 cr)
- Math 165: Calculus I (4 cr)
- Chem 177: General Chemistry I (4 cr)
- Chem 177L: General Chemistry I Lab (1 cr)
- English 150: Critical Thinking and Communication (3 cr)
- Engr 101: Engineering Orientation (R cr)
- Lib 160: Information Literacy (1 cr)

## Semester 2 (17 cr)
- Math 166: Calculus II (4 cr)
- Chem 178: General Chemistry II (3 cr)
- Chem 178L: General Chemistry II Lab (1 cr)
- English 250: Written, Oral, Visual, and Electronic Composition (3 cr)
- Engr 160: Engineering Problems with Computer Applications Lab (3 cr)

## Sophomore Year: Semester 3 (16 cr)
- Math 265: Calculus III (4 cr)
- Mat E 215: Intro to MSE I (3 cr)
- Mat E 215L: Intro to MSE I Lab (1 cr)
- Mat E 214: Structural Characterization of Materials (3 cr)
- Mat E 216: Intro To MSE II Lab (1 cr)
- Phys 221: Introduction to Classical Physics I (5 cr)
- Phys 222: Intro to Classical Physics II (5 cr)
- Gen Ed: _______(U.S. Diversity) (3 cr)

## Semester 4 (16 cr)
- Math 267: Elementary Differential Equations and Laplace Transformations (4 cr)
- Mat E 216: Intro To MSE II (3 cr)
- Mat E 216L: Intro to MSE II Lab (1 cr)
- Gen Ed: _____(International Perspectives) (3 cr)

## Junior Year: Semester 5 (15 cr)
- Mat E 311: Thermodynamics in Materials Engineering (3 cr)
- Mat E 314: Kinetics and Phase Equilibria in Materials (3 cr)
- Specialization: _______________(3 cr)
- Mat E 317: Intro to Electronic Properties of Ceramic, Metallic, and Polymeric Materials (3 cr)
- Mat E 316: Computational Methods in Materials (3 cr)
- Specialization: _______________ ( 3 cr)
- Mat E elec.: _____________ (3 cr)
- E M 274: Engineering Statics (3 cr)

## Semester 6 (18 cr)
- Mat E 401: Materials Engineering Professional Planning (R cr)
- Mat E 414: Materials Design and Professional Practice II (3 cr)
- Specialization: _______________ (3 cr)
- Mat E 413: Materials Design and Professional Practice I
- Mat E 418: Mechanical Behavior of Materials (3 cr)
- Specialization: _______________ (3 cr)
- Mat E 413: Materials Design and Professional Practice I
- Specialization: _______________ ( 3 cr)
- Tech elec.: _____________(3 cr)
- Tech. elec.: _____________(3 cr)
- Gen Ed*: ____Technical Writing (3 cr)

## Senior Year: Semester 7 (15 cr)
- Mat E 401: Materials Engineering Professional Planning (R cr)
- Mat E 414: Materials Design and Professional Practice II (3 cr)
- Specialization: _______________ (3 cr)
- Mat E 413: Materials Design and Professional Practice I
- Mat E 418: Mechanical Behavior of Materials (3 cr)
- Specialization: _______________ (3 cr)
- Mat E 413: Materials Design and Professional Practice I
- Specialization: _______________ ( 3 cr)
- Tech elec.: _____________(3 cr)
- Tech. elec.: _____________(3 cr)
- Free elec.: _____________(3 cr)

## Semester 8 (15 cr)
- Mat E 414: Materials Design and Professional Practice II (3 cr)
- Specialization: _______________ (3 cr)
- Mat E 413: Materials Design and Professional Practice I
- Specialization: _______________ ( 3 cr)
- Tech elec.: _____________(3 cr)
- Tech. elec.: _____________(3 cr)
- Free elec.: _____________(3 cr)

### Specialization Course Sequences: (Note: F = offered Fall only, S = offered S only)

#### Ceramics
- Mat E 321 (F): Introduction to Ceramic Science
- Mat E 322 (S): Introduction to Ceramic Processing
- Mat E 425 (F): Glass Science and Engineering
- Mat E 433 (S): Advanced Electronic Materials

#### Polymers
- Chem 331 (F, S, SS): Organic Chemistry I
- Mat E 351 (S): Introduction to Polymeric Materials
- Mat E 453 (F): Physical and Mechanical Properties of Polymers
- Mat E 454 (S): Polymer Composites and Processing

#### Metals
- Mat E 341 (F): Metals Processing
- Mat E 342 (S): Structure/Property Relations in Nonferrous Metals
- Mat E 443 (F): Physical Metallurgy of Ferrous Alloys
- Mat E 444 (S): Corrosion and Failure Analysis

*Included in the 15 total Gen Ed credits is a 3 credit technical writing requirement.

Choose one of the following courses: Engl 314, Engl 302, Engl 309, or JL MC 347.

Engl 314: Technical Communication
Engl 302: Business Communication
Engl 309: Proposal and Report Writing
JL MC 347: Science Communication