
### ROADMAP TO YOUR GRADUATION

The UNIVERSITY CATALOG contains the official listing of academic information. The MTE Department may change prerequisites and corequisites from time to time as course content changes to keep pace with changing technology. These changes are posted on the academic bulletin board outside the Department office. Students should consult the CATALOG and Department bulletin board prior to registration. Revised Spring Semester 2016.

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
<th>SOPHOMORE YEAR</th>
<th>JUNIOR YEAR</th>
<th>SENIOR YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 100 (3) Intermediate Algebra</td>
<td>MA 101 (4) * N General Chemistry 1 Pre-req. = See catalog</td>
<td>PH 105 (4) * N General Physics with Calculus 1 Pre-req. = MA 113 or 115 or 125 or 145</td>
<td>ECE 320 (3) Fundamentals of Electrical Engineering Pre-req. = PH 106, MA 238</td>
</tr>
<tr>
<td>MA 112 (3) Precalculus Algebra Pre-req. = See catalog</td>
<td>MA 125 (4) * Calculus 1 Pre-req. = MA 100 or higher</td>
<td>PH 106 (4) * N General Physics with Calculus 2 Pre-req. = PH 105 or 105 or 125</td>
<td>MTE 481 (4) W * Analytical Methods for Materials Pre-req. = MA 238 Co-req. = MTE 441</td>
</tr>
<tr>
<td>MA 113 (3) Precalculus Trig OR MA 115 (3) Precalc Alg. &amp; Trig</td>
<td>MA 126 (4) * Calculus 2 Pre-req. = MA 125</td>
<td>MA 238 (3) Differential Equations 1 Pre-req. = MA 126</td>
<td>MTE 443 (3) * Materials Engineering Design 1 Pre-req. = MTE 362, 373, 380 Co-reqs. = MTE 441, 481</td>
</tr>
<tr>
<td>ENGR 103 (3) Engineering Graphics Pre-reqs. = ENGR 103</td>
<td>AEM 201 (3) Statics Pre-req. = MA 125, PH 105, ENGR 103</td>
<td>AEM 250 (3) Mechanics of Materials Pre-req. = AEM 201</td>
<td>MTE 445 (3) * Materials Engineering Design 2 Pre-req. = MTE 416, 441, 443, 455, 481</td>
</tr>
<tr>
<td><strong>ENGR 161 (1) Small-Scale Engineering Graphics Pre-reqs. = ENGR 103</strong></td>
<td>MTE 271 (3) Engineering Materials 1 Pre-req. = CH 101, MA 125</td>
<td>MTE 373 (4) W Physical Metallurgy Pre-req. = MTE 271, 362</td>
<td><strong>ADV. MATH (3) 1</strong></td>
</tr>
<tr>
<td>MTE 121 (1) ‡ Introduction to Metallurgical Engineering</td>
<td><strong>EN 102 (3) * FC English Composition 2 Pre-reqs. = EN 101</strong></td>
<td>MTE 362 (4) C Thermodynamics of Materials Pre-req. = MTE 252</td>
<td>MTE 441 (4) Chemical Metallurgy Pre-reqs. = MTE 353, MTE 362 Co-reqs. = MTE 443</td>
</tr>
<tr>
<td><strong>EN 101 (3) * FC English Composition 1</strong></td>
<td>MTE 252 (3) * Metallurgical Process Calculations Pre-reqs. = CH 102, ENGR 103, MA 125</td>
<td>MTE 375 (3) Engineering Materials Laboratory Pre-req. = CH 102, ENGR 103, MA 125</td>
<td><strong>MTE EL. (3) 2</strong>, <strong>HI/SD (3) 2</strong>, <strong>HI/LFA (3) 2</strong></td>
</tr>
<tr>
<td>EC 110 (3) * SB Principles of Microeconomics Pre-reqs. = MA 100 or higher</td>
<td>MTE 275 (3) Mechanical Behavior of Materials Pre-req. = MA 125</td>
<td>MTE 380 (3) ** Synthesis, Processing and Manufacturing of Materials Pre-req. = MTE 271</td>
<td><strong>MTE El. (3) 2</strong>, <strong>HI/SD (3) 2</strong>, <strong>HI/LFA (3) 2</strong></td>
</tr>
<tr>
<td><strong>HU/LFA (3) * 2</strong></td>
<td><strong>MA 227 (4) Calculus 3 Pre-req. = MA 126</strong></td>
<td><strong>MTE 353 (3) * Transport Phenomena Pre-req. = Math 238, MTE 252</strong></td>
<td>****</td>
</tr>
<tr>
<td><strong>MA 238 (3)</strong></td>
<td>****</td>
<td>****</td>
<td>****</td>
</tr>
</tbody>
</table>

**Total Hours:** 126 hrs

---

1. A list of acceptable science and math electives is available in the metallurgical and materials engineering department office.
2. MTE students may take any MTE 400-level or higher courses with the permission of the instructor.

**Core Curriculum courses**

**Senior standing**

**ME 383**

**ENGR 111**

---

*This is an unofficial flowchart prepared to assist students in planning their coursework.*

### Notes:

1. A list of acceptable science and math electives is available in the metallurgical and materials engineering department office.
2. MTE students may take any MTE 400-level or higher courses with the permission of the instructor.

---

**UNIVERSITY CATALOG** contains the official listing of academic information. The MTE Department may change prerequisites and corequisites from time to time as course content changes to keep pace with changing technology. These changes are posted on the academic bulletin board outside the Department office. Students should consult the CATALOG and Department bulletin board prior to registration. Revised Spring Semester 2016.
Policy on MTE Electives
Each student may select any two MTE electives to satisfy the requirements of MTE elective courses. The technical elective requirement may be satisfied with an additional MTE elective or a 300 level or higher “materials-related” engineering, math, or science course by prior petition.

Policy on Humanities and Social Science Electives
Students must satisfy College of Engineering Core curriculum requirements. These include 9 semester hours of humanities (HU), literature (L), and arts (FA) courses. Nine semester hours are also required in history (HI) and social and behavioral sciences (SB). Six of these 18 semester hours must be from a single discipline (Depth Study). There is no mandatory requirement of literature or fine arts in metallurgical engineering.

Engineering Registration as a Professional Engineer
Engineering is a profession requiring state registration to become a “Professional Engineer.” The first step towards becoming registered is passing the Fundamentals of Engineering Exam. Students are strongly encouraged (but not required) to take and pass the Fundamentals of Engineering Exam before they graduate.

Approved Science Elective Courses**
- BSC 114 – Principles of Biology
- CH 223 – Chemical Equilibria and Analyses
- CH 231 – Elementary Organic Chemistry I
- PH 253 – Modern Physics
- PH 331 – Electricity and Magnetism I
- PH 333 – Optics
- GEO 210 – Minerology
- GE 339 – Natural Resources & Environmental Planning
- CE 425 – Air Pollution (see prerequisites in catalog)
- CHE 438 – Electronic Materials
- CHE 412 – Polymer Materials Engineering
- ME 441 – Introduction to Biomedical Engineering
- MTE 476 – Physical Ceramics
- MTE 487 – Corrosion Science & Engineering

** Other courses in “engineering-related” sciences can be taken provided that it has been approved by the Department by prior petition.

Approved Math Elective Courses*
- MA 237 – Applied Matrix Theory
- MA 257 – Linear Algebra
- MA 300 – Introduction to Numerical Analysis
- MA 343 – Applied Differential Equations II
- MA 411 – Introduction to Numerical analysis
- GES 255 – Engineering Statistics I
- GES 400 – Engineering Statistics
- GES 451 – Matrix and Vector Analysis
- ME 411 – Finite Element Analysis and Heat Transfer

* Other courses in “engineering-related” mathematics (e.g., statistics, linear algebra, advanced calculus, etc.) can be taken provided that it has been approved by the Department by prior petition.

Approved MTE Elective Courses***
- MTE 412 (CHE 412) – Polymer Materials Engineering
- MTE 439 – Metallurgy of Welding
- MTE 449 – Powder Metallurgy
- MTE 450 – Plasma Processing of Thin Films
- MTE 467 – Strengthening Mechanisms in Materials
- MTE 476 – Physical Ceramics

*** Other “materials-related” engineering, math or science courses can be taken provided that it has been approved by the Department by prior petition.