ROADMAP TO YOUR GRADUATION

126 hrs total

Metallurgical & Materials Engineering Curriculum – BS MTE Degree – Revised 2023-- Effective Spring 2024

30 34 33 29 **FRESHMAN YEAR** SOPHOMORE YEAR JUNIOR YEAR **SENIOR YEAR** Pre Fall Spring Fall Spring Fall Spring Fall Spring 16 hrs 14 hrs 17 hrs 17 hrs 16 hrs 17 hrs 14 hrs 15 hrs CH 101 (4) * N PH 106 (4) * N ADV. MATH (3) 1 MA 005 (3) PH 105 (4) * N CH 102 (4) * N General Chemistry 1 General Physics with General Physics with Remedial Placement. = MA 115/125 General Chemistry 2 Calculus 2 Calculus 1 Pre-regs. = CH 100/101/117 Pre-regs. = PH 105/125, MA Mathematics CH 100 (5) if MA placement Pre-regs. = MA 125/145 126/146 MTE 481 (4) W * MTE 455 (4) MA 238 (3) **AEM 250 (3)** MA 100 (3) MA 125 (4) * MA 126 (4) * MA 227 (4) Analytical Methods for Differential Equations 1 Mechanics of Materials Mechanical Behavior of Intermediate Calculus 1 Calculus 2 Calculus 3 Materials Pre-regs. = MA 126/146 Pre-regs. = MA 126/146, Materials Algebra Pre-reqs. = See catalog Pre-reqs. = MA 125/145 Pre-reqs. = MA 126/146 Pre-reqs. = MTE 271 Co-reg. = MA227/247 AFM 201 Pre-reqs. = AEM 250 Co-reg. = MTE 275 MTE 443 (3) # MTE 445 (3) # ENGR 103 (3) AEM 201 (3) MA 112 (3) Materials Engineering Materials Engineering Engineering Statics Design 1 Precalculus Algebra Design 2 Pre-regs. = MA 125/145. Foundations Pre-regs. = EC 110, MTE Pre-reqs. = MTE 316, 441, Pre-regs. = See catalog PH 105/125, ENGR 103 Co-regs. = MATH 125/145 362, 373, 380 443, 455, 481 Co-Regs. = MTE 481 MTE 380 (3) ## MA 113 (3) ENGR 161 (1) MTE 271 (3) MTE 362 (4) C Synthesis, Processing Precalculus Trig Small-Scale MTE 373 (4) W Engineering Thermodynamics of and Manufacturing of Physical Metallurgy Engineering Materials Materials 1 Materials MA 115 (3) Pre-reas. = MTE 252 or Pre-regs. = MTE 271, 362 Pre-regs. = CH 101/117, Graphics Pre-regs. = MTE 316, CHE 254 Precalc Alg. & Trig MA 125/145 Co-regs. = ENGR 103 AEM 250 MTE 252 (3) * MTE 275 (3) MTE 441 (4) MTE EL. (3) 2. MTE 121 (1) ‡ EN 102 (3) * FC MTE 316 (4) C MTE 353 (3) * Metallurgical Process Chemical Metallurgy **Engineering Materials** Introduction to English Fundamentals of Foundry Transport Phenomena Calculations Laboratory Pre-regs. = MTE 353, MTE Metallurgical Composition 2 Processing Pre-req. = MTE 252 Pre-reqs. = EN 101 Pre-reas. = CH 102/118. ENGR Engineering Pre-reqs. = EN 101 Pre-regs. = MTE 275 Co-reg. = MA 238 Co-Reqs. = MTE 443 103. MA 125/145 Co-regs. = MTE 271 EC 110 (3) * SB HU/L/FA (3) * ADV. SCI. (3) 1 MTE EL. (3) 2. MTE EL. (3) 2. EN 101 (3) * FC Principles of English Microeconomics Composition 1 Pre-regs. = MA 100 or higher HI/SB (3) * HI/SB (3) * HU/L/FA (3) * HU/L/FA (3) *

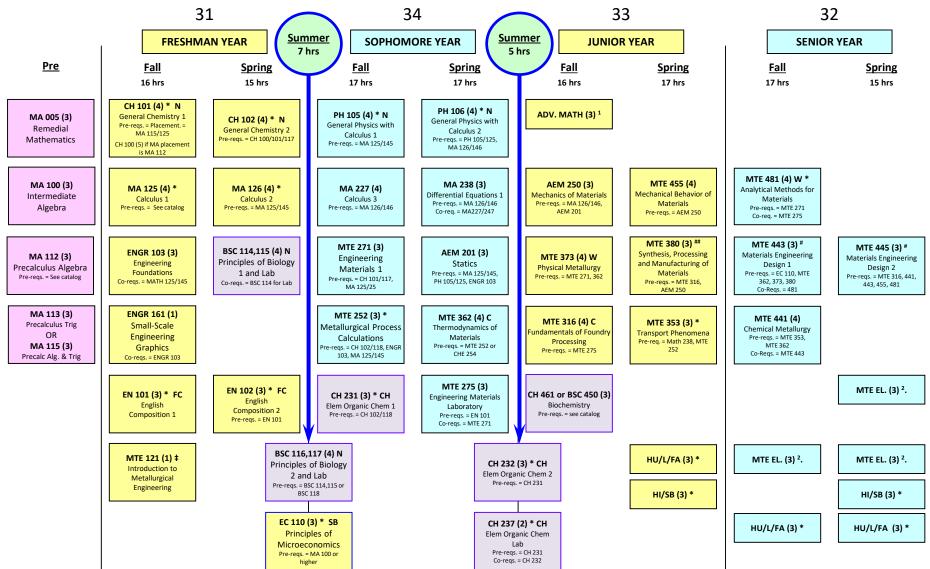
- * Core Curriculum courses
- # Senior standing
- ## or ME 383
- # MTE 121 is recommended, but can be satisfied by taking ENGR 111 or other engineering intro courses.
- A list of acceptable science and math electives is available in the metallurgical and materials engineering department office.
- MTE students may take any MTE 400-level or higher courses with the permission of the instructor.

This is an unofficial flowchart prepared to assist students in planning their coursework. 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 2023.

ROADMAP TO YOUR GRADUATION

143 hrs total

Metallurgical & Materials Engineering **Pre -Med Curriculum** – BS MTE Degree – Revised 2023-- Effective Spring 2024



- Core Curriculum courses
- # Senior standing
- ## or ME 383
- # MTE 121 is recommended, but can be satisfied by taking ENGR 111 or other engineering intro courses.
- A list of acceptable science and math electives is available in the metallurgical and materials engineering department office.
- MTE students may take any MTE 400-level or higher courses with the permission of the instructor.

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ACCELERATED MASTERS PROGRAM ROADMAP (BS-MTE / MS-MTE(2))

Metallurgical & Materials Engineering Curriculum – BS MTE Degree – Revised 2023-- Effective Spring 2024

30 33 29 3 34 9 9 **SOPHOMORE YEAR FRESHMAN YEAR** JUNIOR YEAR **SENIOR YEAR GRADUATE** Fall Spring Fall Spring Fall Spring Fall Spring Summer Fall Spring 16 hrs 14 hrs 17 hrs 17 hrs 16 hrs 17 hrs 14 hrs 15 hrs 3 hrs 9 hrs 9 hrs CH 101 (4) * N PH 106 (4) * N MTE 562 (3) PH 105 (4) * N ADV. MATH (3) 1 MTE 556 (3) General Chemistry 1 CH 102 (4) * N Approved MATH Metallurgical Pre-regs. = Placement. = MA General Physics with Advanced Mechanical General Chemistry 2 Calculus 2 elective³ (3) Calculus 1 Thermodynamics Behavior Pre-regs. = CH 100/101/117 Pre-regs. = PH 105/125, CH 100 (5) if MA placement i regs. = MA 125/145 Pre-req. = AEM 250 Pre-regs. = MTE 362 MA 126/146 MA 112 MTE 481 (4) W * MA 238 (3) AEM 250 (3) MTE 455 (4) MTE 579 (3) MA 227 (4) MA 125 (4) * MA 126 (4) * Analytical Methods for Approved Graduate Mechanical Behavior of Advanced Physical Differential Equations 1 Mechanics of Materials Calculus 1 Calculus 2 Calculus 3 Materials Pre-reqs. = MA 126/146 Pre-reqs. = MA 126/146, Materials Metallurgy Elective (3) Pre-reqs. = See catalog Pre-regs. = MA 125/145 Pre-reqs. = MA 126/146 Pre-reqs. = MTE 271 Co-reg. = MA227/247 **AEM 201** [Pre-req. = AEM 250 Co-req. = MTE 275 MTE 443 (3) # MTE 445 (3) # **AEM 201 (3)** Materials Engineering ENGR 103 (3) Materials Engineering **Approved Graduate** Approved Graduate Statics Design 1 ngineering Foundations Design 2 Pre-regs. = EC 110, MTE 362, Elective (3) Elective (3) Pre-reqs. = MA 125/145, Co-reqs. = MATH 125/145 re-regs. = MTE 316, 441, 443, PH 105/125, ENGR 103 373, 380 455, 481 Co-Reqs. = MTE 481 MTE 380 (3) ## MTE 271 (3) ENGR 161 (1) MTE 362 (4) C nthesis, Processing and MTE 373 (4) W ngineering Materials Small-Scale Thermodynamics of Manufacturing of Physical Metallurgy Materials Engineering Graphics Materials Pre-reqs. = MTE 271, 362 Pre-reqs. = CH 101/117, = MTE 252 or CHE 25 Pre-reqs. = MTE 316, Co-regs. = ENGR 103 MA 125/145 AEM 250 MTE 252 (3) * MTE 275 (3) MTE 441 (4) MTE EL. (3) 2. EN 102 (3) * FC MTE 316 (4) C EN 101 (3) * FC MTE 353 (3) * Metallurgical Process Engineering Materials Chemical Metallurgy English ndamentals of Foundry English Transport Phenomena Calculations Laboratory Pre-reqs. = MTE 353, Composition 2 Processing Composition 1 Pre-reqs. = EN 101 Co-reqs. = MTE 271 re-reg. = Math 238, MTE 252 MTE 362 -regs. = CH 102/118. ENGI Pre-regs. = MTE 275 Co-Reqs. = MTE 443 103, MA 125/145 EC 110 (3) * SB HU/L/FA (3) * ADV. SCI. (3) 1 MTE EL. (3) 2. MTE EL. (3) 2. MTE 121 (1) ‡ Principles of Introduction to Microeconomics Metallurgical Engineering Pre-reqs. = MA 100 or highe HI/SB (3) * HI/SB (3) * HU/L/FA (3) * HU/L/FA (3) *

- * Core Curriculum courses
- # Senior standing
- ## or ME 383/283
- MTE 121 is recommended, but can be satisfied by taking ENGR 111 or other engineering intro courses.
- A list of acceptable science and math electives is available in the metallurgical and materials
 engineering department office. These courses must be taken at 400-level or higher. Prior
 approval must be obtained from the Instructor, Graduate Director and the Graduate School
 before the semester begins. All other coursework to count toward the Graduate degree must be
 taken at the 500-level or higher.
- MTE Students may take up to six (6) hours of MTE 400-level coursework with prior approval from
 the Instructor, Graduate Director and the Graduate School before the semester begins. All other
 coursework to count toward the Graduate degree must be taken at the 500-level or higher.
- A course in engineering-related mathematics (e.g., statistics, linear algebra, advanced calculus, or other math-based course that has been approved by the Department)

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146 hrs total

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 Math Elective Courses*

MA 237 – Applied Matrix Theory

MA 257 – Linear Algebra

ST 260 – Statistical Data Analysis

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

* 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/Science Elective Courses**

BSC 114 – Principles of Biology

CE 262 – Civil & Construction Engineering Materials

CE 425 – Air Pollution (see prerequisites in catalog)

ct 425 – All Foliation (see prerequisites in catalog

CH 223 – Chemical Equilibria and Analyses

CH 231 – Elementary Organic Chemistry I

CHE 412 – Polymer Materials Engineering

ECE 320 – Fundamentals of Electrical Engineering

GEO 210 – Minerology

GY 339 – Natural Resources & Environmental Planning

MFE 342 - Fundamentals of Materials Processing

MFE 442 – Advanced Materials Science and Additive Processes

MTE 412 (or 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

MTE 487 – Corrosion Science & Engineering

PH 253 – Modern Physics

PH 331 - Electricity and Magnetism I

PH 333 – Optics

PH 481 – Solid State Physics

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

