ROADMAP TO YOUR GRADUATION

Metallurgical & Materials Engineering Curriculum – BS MTE Degree – Fall 2025

127 hrs total

Pre	FRESHMAN YEAR		SOPHOMORE YEAR		JUNIOR YEAR		SENIOR YEAR	
	31		34		33		32	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
	15 hrs	16 hrs	17 hrs	17 hrs	16 hrs	14 hrs	17 hrs	15 hrs
MATH 005 (3) Remedial Mathematics	**CH 101 (4) * N** General Chemistry 1 Placement. = MATH 115/125	**CH 102 (4) * N** General Chemistry 2 Pre-reqs. = CH 101/117, MATH 112 or higher	**PH 105 (4) * N** General Physics with Calculus 1 Pre-reqs. = MATH 125/145	**PH 106 (4) * N** General Physics with Calculus 2 Pre-reqs. = PH 105/125, MATH 126/146	**MTE or ADV. MATH ELECTIVE (3) [1]**		**MTE ELECTIVE (3) [1].**	**MTE ELECTIVE (3) [1].**
MATH 100 (3) Intermediate Algebra	**MATH 125 (4) *** Calculus 1 Pre-reqs. = See catalog	**MATH 126 (4) *** Calculus 2 Pre-reqs. = MATH 125/145	**MATH 227 (4)** Calculus 3 Pre-reqs. = MATH 126/146	**MATH 238 (3)** Differential Equations 1 Pre-reqs. = MATH 126/146	**AEM 250 (3)** Mechanics of Materials Pre-reqs. = MATH 126/146, AEM 201	**MTE 455 (4)** Mechanical Behavior of Materials Pre-reqs. = AEM 250	**MTE 481 (4) W *** Analytical Methods for Materials Pre-reqs.=MTE271, MTE373 Pre-req. w/ concurrency = MTE 275	**MTE 445 (3) #** Materials Engineering Design 2 Pre-reqs. = MTE 316, 441, 443, 455, 481
MATH 112 (3) Precalculus Algebra Pre-reqs. = See catalog	**ENGR 104 (3)** Engineering Foundations Pre-req w/ concurrency = MATH 112	**EC 110 (3) * SB** Principles of Microeconomics Pre-reqs. = MATH 100 or higher		**AEM 201 (3)** Statics Pre-reqs. = MATH 125/145, PH 105/125, ENGR 104			**MTE 443 (3) #** Materials Engineering Design 1 Pre-reqs=MTE 362, 373, 380 Pre-req w/ concurrency = MTE 481	**MTE ELECTIVE (3) [1].**
MATH 113 (3) Precalculus Trig OR **MATH 115 (3)** Precalc Alg. & Trig	**UA 101 (1) *** Legends 101	**ENGR 101 (1) *** The World of Engineering	**MTE 271 (3)** Engineering Materials 1 Pre-reqs. = CH 101/117, MATH 125/145	**MTE 362 (4)** Thermodynamics of Materials Pre-reqs. = MTE 252 or CHE 254	**MTE 373 (4) W** Physical Metallurgy Pre-reqs. = MTE 271, 362	**MTE 380 (3)** Synthesis, Processing and Manufacturing of Materials Pre-reqs. = MTE 271 (recommended AEM 250)	**MTE 441 (4)** Chemical Metallurgy Pre-reqs. = MTE 353, MTE 362 Pre-req w/ concurrency = MTE 443	**MTE ELECTIVE (3) [1].**
	EN 103/104 (3) * FC English Composition 2	**ENGR 161 (1)** Small-Scale Engineering Graphics Pre-req w/ concurrency = ENGR 104	**MTE 252 (3) *** Metallurgical Process Calculations Pre-reqs. = CH 102/118, ENGR 104, MATH 125/145	**MTE 275 (3)** Engineering Materials Laboratory Pre-reqs. = EN 103/104/120 Pre-req w/ concurrency = MTE 271	**MTE 316 (4) C** Fundamentals of Foundry Processing Pre-reqs. = MTE 275, 362	**MTE 353 (3)** Transport Phenomena Pre-req. = MTE 252 Pre-req. w/ concurrency = MATH 238	**MTE 410 (3) *** Engineering in a Social and Global Context Pre-reqs = MTE 373 **or** ME 305 **or** MFE 332	**HU/L/FA (3) ***
		HI/SB (3) *	**HU/L/FA (3) ***		**HU/L/FA (3) ***	**HI/SB (3) ***		

* Core Curriculum courses – NOTE: At least one HU/L/FA course must carry the Literature (L) attribute and at least one HI/SB course must carry the History (HI) attribute

\# Senior standing

1. A list of courses that satisfy the MTE elective requirements can be found in the UA Catalog at http://catalog.ua.edu/

Fall - Only course offering

Spring - Only course offering

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. Students should consult the CATALOG and academic advisor prior to course registration.

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Approved MTE Elective Courses**

BSC 114 – Principles of Biology
CE 262 – Civil & Construction Engineering Materials
CE 425 – Air Pollution (see prerequisites in catalog)
CH 223 – Quantitative Analysis
CH 231 – Elementary Organic Chemistry I
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 481 – Solid State Physics
MATH 237 – Introduction to Linear Algebra
MATH 343 – Applied Differential Equations II
MATH 411 – Numerical Analysis I
GES 255 or 400 – Engineering Statistics
ST 260 – Statistical Data Analysis

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

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.

THE UNIVERSITY OF ALABAMA® | College of Engineering
Metallurgical and Materials Engineering

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