

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

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Pre	FRESHMAN YEAR		SOPHOMORE YEAR		JUNIOR YEAR		SENIOR YEAR	
	Fall 15 hrs	Spring 16 hrs	Fall 17 hrs	Spring 17 hrs	Fall 16 hrs	Spring 14 hrs	Fall 17 hrs	Spring 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 .
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. = 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.

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.