

Name: _____

Exp. Grad.: Fall ____ / Spring ____

Materials Science and Engineering
Suggested Curriculum Course Plan for students entering Fall 2024 – Spring 2025

Semester 1		Semester 2		Semester 3		Semester 4	
Course (cr. Hr.)	X	Course (cr. Hr.)	X	Course (cr. Hr.)	X	Course (cr. Hr.)	X
Writing I*: ENGL 101 (4)*		Calculus II: MATH 152 (4)		Technical Communication: ENGR 110 (4)		Differential Equations: MATH 271 (3)	
Calculus I: MATH 151 (4)		General Chemistry II & Lab: CHEM 106 (3) & CHEM 106L (1)		Calculus III: MATH 253 (4)		Microscopy & Microstructure and Lab: CEMS 215 (3) & CEMS 215L (0)	
General Chemistry I & Lab: CHEM 105 (3) & CHEM 105L (1)		Physics I & Lab: PHYS 125 (4) & PHYS 125L (0)		Physics II & Lab: PHYS 126 (4) & PHYS 126L (0)		Bonding & Structure of Materials: CEMS 216 (3)	
Introduction to Engineering: ENGR 101 (2)		Computer Aided Design: ENGR 102 (2)		Structure and Property of Materials: CEMS 214 (3)		Thermodynamics of Materials: CEMS 235 (4)	
Engineering Foundations II & Lab: ENGR 117 (2) & ENGR 117L (0)		Computer Aided Engineering: ENGR 104 (2)		Statics: MECH 211 (3)		Undergraduate Seminar: ENGR 360 (0)	
First-Year Seminar: ENGR 160 (0)		First-Year Seminar: ENGR 160 (0)		Undergraduate Seminar: ENGR 360 (0)		General Education Elective (4)	
Wellness (2)		Common Ground: UNIV 101 (1)					
Total (18)		Total (17)		Total (18)		Total (17)	

* ENGL 101 if required otherwise General Education elective (2-4).

Semester 5		Semester 6		Semester 7		Semester 8	
Course (cr. Hr.)	X	Course (cr. Hr.)	X	Course (cr. Hr.)	X	Course (cr. Hr.)	X
Thermal Processes in Materials: CEMS 237 (4)		Introduction to Polymers: CEMS 334 (3)		Ceramic Processing Principles: CEMS 314 (3) or Chemical Processing in Ceramics: CEMS 316 (3)		Mechanics of Composites: CEMS 446 (3)	
Introduction to Glass Science: CEMS 322 (3)		Properties II: Electrical, Magnetic & Optical: CEMS 344 (4)		Physical Metallurgy I: CEMS 336 (3)		Senior Capstone Individual Project: ENGR 480 (2)	
Spectroscopy & Lab: CEMS 347 (2) & CEMS 347L (0)		Engineering Statistics: ENGR 305 (3)		Thermal and Mechanical Properties: CEMS 342 (4)		Technical Elective (3)	
X-ray Characterization & Lab: CEMS 349 (2) & CEMS 349L (0)		Engineering Design: ENGR 395 (2)		Senior Capstone Individual Project: ENGR 480 (2)		Undergraduate Seminar: ENGR 360 (0)	
Circuit Theory I: ENGR 220 (4) & ENGR 220L (0)		Mechanics of Materials: MECH 241 (3)		Technical Elective (3)		General Education Elective (4)	
Engineering Economics: ENGR 306 (2)		Undergraduate Seminar: ENGR 360 (0)		Undergraduate Seminar: ENGR 360 (0)		Fitness (1)	
Undergraduate Seminar: ENGR 360 (0)				General Education Elective (2)			
Total (17)		Total (15)		Total (17)		Total (13)	

Total Credits: 132

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Definitions of Electives for MATS (6 total):

6 Credits - Technical Electives

(A) Most 300- and 400-level courses designated CEMS, CHEM, ELEC, ENGR, MATH, MECH, PHYS, or RNEW. Exceptions include: CHEM 343, MATH 331, MECH 320, and Topics courses unless approved by the Dean. (B) One of FIN 348 or MGMT 328, (C) COOP 385 or ENGR 385/Internship.

Requirements:

1. AU Global Perspective
2. AU Wellness & Physical Education: Well (ATHT 111, 190, 215, 222, BIOL 105, 120, DANC 120, 200, 222, 223, 224, 226, PSYC 251, 322, 351, WELL 100, 101, WGST 351, PFIT: Varsity sport for one season, physical fitness test, any course with PFIT designation which includes some Equestrian, Dance, and ROTC courses.
3. SOE Minimum Credit Requirement of 128 credits
4. SOE GPA requirement of 2.0 and no more than 7 credits of D or D+ in engineering courses.
5. SOE Seminar requirement
6. SOE General Education Requirement of 60 credits comprising: Quantitative Reasoning, Humanities (minimum of six credits with at least two different acronyms, Natural Science, Social Science (minimum of three credits), AU Wellness, Written Communication, and General/Arts (maximum of eight credits).
7. Defense of Capstone Poster & submission of approved Thesis. (ENGR 480 2+2 with the same instructor).

Complete SOE requirements are available in the AU Undergraduate Catalog 2024-2025. <https://alfred.edu/academics/undergrad-majors-minors/catalog.cfm>

Degree Audit, including What-If, is available via Degree Works.
<https://my.alfred.edu/degreeworks/index.cfm>

Special cases are not covered by this Suggested Curriculum Course Plan; these may include testing out of courses via SAT score. AP exam, etc., double/dual majors, minors, transfer credits, etc.