NAME: _____

MATERIALS SCIENCE AND ENGINEERING

UID: _____ **__ A.A. __ A.S. __ Post-Bac**

GENERAL EDUCATION REQUIREMENTS			
Fundamental Studies			
Academic Writing (AW)	ENGL 101		3
Professional Writing (PW)	ENGL 39X		3
Oral Communication (OC)			3
Mathmatics (MA)	MATH 140		4
Analytic Reasoning (AR)	MATH 140		0
Distributive Studies			
History/Social Sciences (HS*)			3
History/Social Sciences (HS*)			3
Humanities (HU*)	ENES/ENEE 200		3
Humanities (HU*)			3
Natural Sciences No Lab (NS)	PHYS 161		3
Natural Sciences w/Lab (NL)	PHYS 260/261		4
Scholarship in Practice (SP*) in major	ENES 100		3
Scholarship in Practice (SP*) out of major			3
Big Question Courses			
Big Question (SCIS*)	ENES/ENEE 200		0
Big Question (SCIS*)			0/3
Diversity			
Understanding Plural Societies (UP*)			0/3
Understanding Plural Societies (UP*) OR Cultural Competency (CC*)			0/3

MAJOR REQUIREMENTS		
Basic Sciences		
CHEM 135-Chem Engr **or** 131 & 134 -Fund & Prin		3/3&1
CHEM 136 - Chemistry Lab for Eng		1
PHYS 161 - General Physics I (NS)		0
PHYS 260 and 261 - Gen Physics II & Lab (NL)		0
PHYS 270 and 271 - Gen Physics III & Lab		3 & 1
MATH 140 - Calculus I (MA/AR)		0
MATH 141 - Calculus II		4
MATH 241 - Calculus III		4
MATH 246 - Differential Equations		3
Engineering Sciences		
ENES 100 - Intro to Eng Design (SP)		0

MAJOR REQUIREMENTS		
ENES200 or ENEE200 - Tech & Consequences (HU/I-Series)		0
ENMA 165 - Intro Programming - Python		3
ENMA 180 - MSE: The Field and the Future		1
ENMA 300 - Intro to Materials Engineering		3
ENMA 301 - Materials Emerging Tech		3
ENMA 312 - Experimental Methods in MSE		3
ENMA 362 - Mechanical Properties		3
ENMA 441 - Characterization of Materials		3
ENMA 460 - Physics of Materials		3
ENMA 461 - Thermodynamics of Materials		3
ENMA 465 - Microprocessing Materials		3
ENMA 470 - Materials Selection for Engr Design		3
ENMA 471 - Kinetics		3
ENMA 487- Capstone Preparation		1
ENMA 490 - Materials Design		3
Technical Requirements		
CHEM 231 & 232-Org Chem I **or** CHEM 481		3&1OR3
TECH 4XX - Tech. Elective**		3
TECH 4XX - Tech. Elective**		3
ENMA 4XX - Spec. Elective**		3
ENMA 4XX - Spec. Elective**		3
ENMA 4XX - Spec. Elective**		3
ENMA 4XX - Spec. Elective**		3
ENMA 4XX - Spec. Elective**		3
SCI ELEC - Upper level Science Elective		3

* May satisfy more than one requirement. See www.gened.umd.edu

**Students should design a course program under the guidance of their advisor. Check the website to see examples of potential specialization electives for each option.

Requirements for Graduation:

- Final 30 credits must be earned at UMD
- 15 of the final 30 credits must be earned at the 300-400 level
- 12 of the final 30 credits must be upper level major coursework
- A minimum 2.00 cumulative UM GPA and satisfactory completion of all degree requirements are required for graduation
- Students matriculating after Fall 2012 must have a 2.0 minimum GPA for all degree requirements, minor requirements, and undergraduate certificate requirements *(Major courses are defined as: departmental courses basic sciences, engineering sciences, specified degree tracks, technical requirements/ technical electives and Professional Writing (PW)*
- A minimum of 120 credits is required to earn the degree

Materials Science and Engineering Graduation Plan

Name:_____ **UID:**_____

Current Engineering Students: https://eng.umd.edu/services/academic-policies

Prospective Engineering Students: https://lep.umd.edu/

Year 1	Fall			Spring		
	Course	***Credit***	***Grade***	***Course***	***Credit***	***Grade***
	ENES 100 (SP)	3		ENMA 165	3	
	MATH 140 (AR)	4		MATH 141	4	
	CHEM 135	3		PHYS 161	3	
	CHEM 136	1		Hist & Social Sciences (HS)*	3	
	ENGL 101 (AW)	3		ORAL COMM (OC)	3	
	ENMA 180	1				
	Total	**15**		**Total**	**16**	

Year 2	Fall			Spring		
	Course	***Credit***	***Grade***	***Course***	***Credit***	***Grade***
	MATH 241	4		MATH 246	3	
	PHYS 260 and PHYS 261 (NL)	3 & 1		PHYS 270 and PHYS 271 (NL)	3 & 1	
	ENMA 300	3		ENMA 301	3	
	ENES/ENEE 200 (HU/SCIS)	3		CHEM 231 & 232 OR 481	3 & 1 OR 3	
				Hist & Social Sciences (HS)*	3	
	Total	**14**		**Total**	**16 or 17**	

Year 3	Fall			Spring		
	Course	***Credit***	***Grade***	***Course***	***Credit***	***Grade***
	ENMA 312 OR Upper Level Science Elective	3		ENMA 312 OR Upper Level Science Elective	3	
	ENMA 362	3		ENMA 461	3	
	ENMA 460	3		ENMA 465	3	
	Specialization Elective	3		ENMA 470	3	
	Scholarship in Practice (SP)*	3		Specialization Elective	3	
	Total	**15**		**Total**	**15**	

Year 4	Fall			Spring		
	Course	***Credit***	***Grade***	***Course***	***Credit***	***Grade***
	ENMA 441	3		ENMA 490	3	
	ENMA 471	3		Specialization Elective	3	
	ENMA487	1		Specialization Elective	3	
	Specialization Elective	3		Technical Elective	3	
	Technical Elective	3		Humanities (HU)*	3	
	Professional Writing (PW)	3				
	Total	**16**		**Total**	**15**	

*All students must complete two Distributive Studies courses that are approved for Big Question courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.

Udated Spring 2026 - ADA