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
Distributive Studies			
History/Social Sciences (HS*)			3
History/Social Sciences (HS*)			3
Humanities (HU*)			3
Humanities (HU*)			3
Scholarship in Practice (SP*) out of major			3
I-Series Courses			
I-Series (IS*)			0/3
I-Series (IS*)			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)			3
PHYS 260 and 261 - Gen Physics II & Lab (NL)			3 & 1
PHYS 270 and 271 - Gen Physics III & Lab			3 & 1
MATH 140 - Calculus I (MA/AR)			4
MATH 141 - Calculus II			4
MATH 241 - Calculus III			4
MATH 246 - Differential Equations			3
Engineering Sciences			
ENES 100 - Intro to Eng Design (SP)			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.

For Degree Clearance Only

Degree: B.S. ENMA Advisor: _____

Date:_____ Credits/GPA: _____

MAJOR REQUIREMENTS		
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

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 Four Year Academic Plan

Name:_____ **UID:**_____

Year 1	Fall			Spring		
Gateway requirements include: ENGL 101, CHEM 135, MATH 141, PHYS 161 and an approved Distributive Studies course. (Directly admitted freshman must successfully complete these courses and ENES 100 by 45 UM credits.)	***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		Humanities (HU)*	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	
	ORAL COMM (OC)	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 I-series courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.