

**Integrated Business and Engineering Honors Program
Curriculum for a Major in Materials Science & Engineering
Revised August 2016.**

Freshman Year, Fall Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	English 001	Composition & Literature	F,S	
		4	Math 21	Calculus I	F,S	
		5	Physics 11, 12	Introductory Physics I	F,S	Math 21 (PC)
		4	Economics 001	Principles of Economics	F,S	
		1	IBE 010	IBE Freshman Seminar	F	IBE Student
		17	Semester total			
		17	Cumulative credits			

Freshman Year, Spring Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	English 2	Comp. & Lit.	F,S	English 1
		4	Math 22	Calculus II	F,S	Math 21
		4	Chem 30	Intro. Chemical Principles	F,S	
		3	IBE 050	IBE Freshman Workshop	S	IBE 010 or Permission
		2	Engineering 010	Engineering Computations	F,S	
		16	Semester total			
		33	Cumulative credits			

Sophomore Year, Fall Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mat 33	Engin. Mat. & Processes	F,S	
		2	Mat 10	Materials Lab	F	Mat 33 (PC)
		4	Physics 21	Introductory Physics II	F,S	Phys 11, Math 23 (PC)
		1	Physics 22	Physics Lab	F,S	Physics 12, Phys 21 (Co pref.)
		4	Math 23	Calculus III	F,S	Math 22
		1	IBE 150	IBE Sophomore Lab	F	IBE status
		15	Semester total			
		48	Cumulative credits			

Sophomore Year, Spring Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mat 203	Struct. & Char. Of Materials	S	Chem 30, Mat 33 (PC), Mat 10
		3	Mat 205	Thermo & Phase Diagrams	S	Mat 33 (PC), Math 23
		3	Mat 218	Mech. Behav. of Materials	S	Mat 33, Mat 10
		3	Eco 029	Money & Banking	F,S	Eco 1
		3	Acct 151	Intro. Financial Accounting	F,S	Sophomore standing, Engr 010
		3	Free Elective			
		18	Semester total			
		66	Cumulative credits			

Junior Year, Fall Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mat 216	Diffusion & Phase Trans.	F	Mat 203, Mat 205
		3	Mat 20	Comp. Meth. In Mat. Sci.	F	Engr 010
		3	Math 231	Prob. & Statistics	F,S	Math 22
		3	Acct 152	Intro. Managerial Accounting	F,S	Acct 151
		4	Comm 160* or 130	Public Speaking for IBE	F,S	
		1	IBE 250	IBE Junior Lab	F	IBE 150
		17	Semester total			

83	Cumulative credits
----	--------------------

* Comm 160 recommended

Junior and Senior Years for those students receiving only the single IBE/MAT degree

Junior Year, Spring Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mat 201	Phys. Props. of Mats.	S	Phys 21, Mat 33, Math 205
		3	Mat 204 or	Proc. of Polymers	S	204: Mat 33
			Mat 206 or	Proc. of metals	S	206: Mat 216, Mat 218
			Mat 214	Proc. of Ceramics	S	214: Mat 33
			(or Mat 252 in Fall senior year)	Elect. Prop. Mats.	F	302: Mat 201, 203
		3	Fin 125	Intro. to Finance	F,S	Eco 029, Acct 151, ECO 045
		3	Mkt 111	Princ. Of Marketing	F,S	Eco 1, Sophomore Standing
		3	Math 205	Linear Systems	F,S	Math 23 (PC)
		3	IBE 380	IBE Capstone Design I	S	IBE 050
		18	Semester total			
		101	Cumulative credits			

Senior Year, Fall Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mech 3	Elem. Engin. Mechanics	F,S	Phys 11, Math 22 (PC)
		3	Eco 146	App. Microeconomics	F,S	Eco 1, Math 231
		3	Law 201	Legal Env. of Business	F,S	Eco 1, Junior standing
		3	BIS 111	Intro to Info Systems	F,S	Engin 097 (Excel experience)
		3	HSS Elective			(Dual degree, see below)
		3	IBE 385	IBE Capstone Design II	F	IBE 380
		18	Semester total			
		119	Cumulative credits			

Senior Year, Spring Semester

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	ChE 280 (formerly 60)	Unit operations survey	S	
		3	ECE 83	Princ. Electrical Engin.	F,S	Math 22, Phys 21 (PC)
		1	ECE 162	Princ. Electrical Engin. Lab	F,S	ECE 81 or ECE 83 (PC)
		4	Mgmt 243	Mgmt of People & Ops.	F,S	Junior Standing
		3	Free Elective			
		4	HSS Elective			(Dual degree, see below)
		18	Semester total			
		137	Cumulative credits			

(PC) = Previously or Concurrently (Co) = Co-requisite; must be taken at the same time

In addition to the curriculum above, IBE MS&E majors must fulfill standard IBE requirements including

Language proficiency

Summer internship

Maintain a GPA of at least 3.25

MS&E Dual Degree Option

Courses required for the BSMS&E degree not taken by IBE MS&E Majors:

Credits	Course	Description	Semester	Prerequisites
2	Mat 101	Professional Development	F	Junior Standing

9 (Remaining 3 of 4 courses), Mat 204, Mat 206, Mat 214, Mat 252	(see above)	(see above)
3 Mat 268	Failure Analysis Reports	S
3 Approved Elective	See options in catalog	
6 Engin. Sci. Elec.	See options in catalog	
2 Free Elective		
25 Total Credits		Mat 204,206,214,218

Completing the Dual Degree program with simultaneous BS-IBE and BS-MS&E degrees received after the 5th year

1. Take the above “**Courses required for the BSMS&E degree not taken by IBE MS&E Majors**”
2. Complete at least 162 total credits (MS&E degree requires 132 + 30 credits from the “30 credit rule”)
3. Take at least 2 additional credits of ECO as HSS elective to fulfill the "8 credits in 1 dept." rule (most ECO courses are SS)

If a student is planning ahead to receive an IBE degree and an accredited MAT B.S. after five years, the recommended junior, senior, and 5th year sequence is shown here.

Junior Year, Spring Semester (dual degree)

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		6	Mat 204 or Mat 206 or Mat 214	Proc. of Polymers Proc. of Metals Proc. of Ceramics	S S S	204: Mat 33 206: Mat 216, Mat 218 214: Mat 33
		3	Fin 125	Intro. to Finance	F,S	Eco 029, Acct 151, Math231
		3	Mkt 111	Princ. Of Marketing	F,S	Eco 1, Sophomore Standing
		3	Math 205	Linear Systems	F,S	Math 23 (PC)
		3	IBE 380	IBE Capstone Design I	S	IBE 050
		18	Semester total			
		101	Cumulative credits			

4th Year, Fall Semester (dual degree)

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mat 20	Comp. Meth. In Mat. Sci.	F	Engr 097
		2	Mat 101	Professional Development	F	Junior Standing
		3	Eco 146	App. Microeconomics	F,S	Eco 1, Math 231
		4	HSS Elective			(Dual degree, see ECO option)
		3	IBE 385	IBE Capstone Design II	F	IBE 380
		15	Semester total			
		116	Cumulative credits			

4th Year, Spring Semester (dual degree)

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	Mat 201	Phys. Props. of Mats.	S	Phys 21, Mat 33, Math 205
		3	Mat 204 or Mat 206 or Mat 214 (whichever one remains)	Proc. of Polymers Proc. of Metals Proc. of Ceramics	S S S	204: Mat 33 206: Mat 216, Mat 218 214: Mat 33
		4	Mgmt 243	Mgmt of People & Ops.	F,S	Junior Standing
		4	HSS Elective			(Dual degree, see ECO option)
		14	Semester total			

130	Cumulative credits
-----	--------------------

5th Year, Fall Semester (dual degree)

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	BIS 111	Intro to Info Systems	F,S	Engin 010 (Excel experience)
		3	Mat 252	Elect. Prop. Mats.	F	Mat 201, 203
		3	Law 201	Legal Env. of Business	F,S	Eco 1, Junior standing
		4	HSS Elective			
		3	Engin. Sci. Elec.	See options in catalog		
		16	Semester total			
		146	Cumulative credits			

5th Year, Spring Semester (dual degree)

Planned	Completed	Credits	Course	Description	Semester	Prerequisites
		3	ChE 280 (formerly 60)	Unit operations survey	S	
		3	ECE 83	Princ. Electrical Engin.	F,S	Math 22, Phys 21 (PC)
		1	ECE 162	Princ. Electrical Engin. Lab	F,S	ECE 81 or ECE 83 (PC)
		3	Approved Elective	See options in catalog		
		3	Mat 268	Failure Analysis Reports	S	Mat 204,206,214,218
		3	Engin. Sci. Elec.	See options in catalog		
		16	Semester total			
		162	Cumulative credits			