

## Recommended Curriculum

<b>First Year – First Semester</b>				<b>First Year – Second Semester</b>			
CHB 111	Introduction to Chemical and Biological Engineering I	2		CHB 112	Introduction to Chemical and Biological Engineering II	2	
CHY 121	Introduction to Chemistry	3		CHY 122	The Molecular Basis of Chemical Change	3	
CHY 123	Introduction to Chemistry Laboratory	1		CHY 124	The Molecular Basis of Chemical Change Laboratory	1	
MAT 126	Calculus I	4		MAT 127	Calculus II	4	
PHY 121	Physics for Engineers and Physical Scientists I	4		PHY 122	Physics for Engineers and Physical Scientists II	4	
ENG 101	College Composition	3			Human Values & Social Context Elective <sup>1</sup>	3	
		<b>17</b>				<b>17</b>	
<b>Second Year – First Semester</b>				<b>Second Year – Second Semester</b>			
CHB 200	Fundamentals of Process Engineering	4		CHB 350	Statistical Process Control and Analysis	3	
CHY 251	Organic Chemistry I	3		CHY 252	Organic Chemistry II	3	
CHY 253	Organic Chemistry Laboratory I	2		MAT 258	Introduction to Differential Equations with Linear Algebra	4	
MAT 228	Calculus III	4		MEE 231	Thermodynamics II	3	
MEE 230	Thermodynamic I	3		PPA 264	Introduction to Pulp and Paper Industry	3	
		<b>16</b>				<b>16</b>	
<b>Third Year – First Semester</b>				<b>Third Year – Second Semester</b>			
CHE 360	Elements of Chemical Engineering I	4		CHE 362	Elements of Chemical Engineering II	4	
CHE 352	Process Control	3		CHY 483	Introductory Wood Chemistry	3	
PPA 465	Pulp Technology	3		ECE 209	Fundamentals of Electric Circuit	3	
	Approved Technical Elective I <sup>2</sup>	3		PPA 466	Paper Technology	3	
	Human Values & Social Context Elective <sup>1</sup>	3			Human Values & Social Context Elective <sup>1</sup>	3	
		<b>16</b>				<b>16</b>	
<b>Fourth Year – First Semester</b>				<b>Fourth Year – Second Semester</b>			
CHE 477	Elements of Chemical Process Design	3		MEE 251	Strength of Materials	3	
MEE 150	Applied Mechanics: Statics	3		PPA 499	Undergraduate Thesis	4	
PPA 499	Undergraduate Thesis	4			Approved Technical Elective III <sup>2</sup>	3	
	Approved Technical Elective II <sup>2</sup>	3			Human Values & Social Context Elective <sup>1</sup>	3	
	Human Values & Social Context Elective <sup>1</sup>	3			Human Values & Social Context Elective <sup>1</sup>	3	
		<b>16</b>				<b>16</b>	

### Total Credits Required for Graduation = 130

<sup>1</sup> The **Human Values & Social Context Electives (18 credits)** must be selected to meet the University of Maine General Education requirements. These should be selected from a list of approved courses to satisfy each of the five sub-categories: western cultural tradition, social context and institutions, cultural diversity and international perspectives, population and the environment, and artistic and creative expression. Some courses cover more than one sub-category.

<sup>2</sup> The **Technical Electives (9 credits)** should be upper level (300 level or higher) courses. Courses should be selected as part of a coherent plan and approved by the academic advisor. Courses in wood science and chemical engineering are recommended: WSC 314 (Wood and Wood Fiber Processing); WSC 416 (Wood Anatomy); WSC 425 (Mechanical Properties of Wood); WSC 430 (Wood Composites and Adhesion); CHE 368 (Kinetics and Reactor Design); CHE 420 (Colloid Technology); CHE 478 (Computer Aided Process Design), CHE 575 (Paper Surface Science). A list of additional approved courses is available at the Department Office or at <http://www.umche.maine.edu/chb>.