

# Degree Requirements for B.S. in Chemical Engineering at Wayne State University

## Molecular Engineering and Nanotechnology Option

### Freshman Year

#### First Semester

	Credits	
MAT 2010 – Calculus I	4	
CHM 1225 – (PS) Chemical Structure, Bonding & Reactivity	3	
CHM 1230 – Chemical Principles in the Laboratory	1	
ENG 1020 – (BC) Introductory College Writing	4	
B E 1200 – (CL) Basic Engineering I – Design in Engineering	3	
UGE 1000 – (GE) Information Power	1	
<b>Total</b>	<b>16</b>	

#### Second Semester

MAT 2020 – Calculus II	4	
CHM 1240 – Principles of General/Organic Chemistry	4	
CHM 1250 – General/Organic Lab	1	
PHY 2175 – (PS) General Physics	4	
B E 1300 – Basic Engineering II: Materials Science for Engg. Applications	3	
B E 1310 – Basic Engineering II: Materials Science for Engg. Applications Lab	1	
<b>Total</b>	<b>17</b>	

### Sophomore Year

#### First Semester

MAT 2030 – Calculus III	4	
PHY 2185 – General Physics	4	
B E 2100 – Basic Engineering III: Probability and Statistics in Engineering for Engineering Application	3	
BIO 1510 – (LS) Basic Life Mechanisms	3	
PHI 1100 – (PL) Contemporary Moral Issues	3	
<b>Total</b>	<b>17</b>	

#### Second Semester

MAT 2150 – Differential Equations and Matrix Algebra	4	
CHE 2800 – Material and Energy Balances	4	
B E 2550 – Basic Engineering IV – Computer Programming and Numerical Methods in Engineering	3	
CHM 2220 – Organic Chemistry II	3	
ECO 2020 – (SS) Principles of Macroeconomics	3	
English Proficiency Exam	0	
Critical Thinking Exam	0	
<b>Total</b>	<b>17</b>	

### Junior Year

#### First Semester

CHE 3200 – Fluid Flow & Heat Transfer	4	
CHE 3300 – Thermodynamics: Chemical Equilibria	4	
CHM 5440 – Physical Chemistry II	4	
ENG 3050 – (IC) Technical Communication I: Report Writing	3	
Historical Studies Elective- (HS)	3	
<b>Total</b>	<b>18</b>	

#### Second Semester

CHE 3220 – Measurements Laboratory	2	
CHE 3400 – Kinetics and Reactor Design	4	
CHE 4260 – Chemical Engineering Seminar I	0	
CHE 3800 – Mass Transfer and Separation Processes	4	
ENG 3060 – (OC) Technical Communication II: Writing & Speaking	3	
MSE 5650 - Surface Science	3	
<b>Total</b>	<b>16</b>	

### Senior Year

#### First Semester

CHE 5811 – Research Preparation I	1	
CHE 3820 – Chemical Engineering Laboratory	2	
CHE 4200 – Product and Process Design	3	
CHE 4600 – Process Dynamics and Simulation	2	
CHE 4860 – Chemical Engineering Seminar II	1	
Chemical Engineering Technical Elective	5	
<b>Total</b>	<b>14</b>	

#### Second Semester

Chemical Engineering Technical Electives	3	
CHE 6810 – (WI) Chemical Engineering Research Project	4	
Foreign Culture Elective (FC)	3	
Visual & Performing Arts Elective (VP)	3	
American Society and Institutions Elective (AI)	3	
<b>Total</b>	<b>16</b>	

Total Credits	131
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