

# CHEMICAL ENGINEERING (GIEP) - CLASS OF 2020

## Freshman Year Fall Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141	Intro Calculus with Analytical Geometry (A1, B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
GER 111	Intensive Beginning German I	4	
		<b>17</b>	

## Freshman Year Spring Semester

Course Code	Description	Cr	
CHM 112	General Chemistry II Lec	3	
CHM 114	General Chemistry II Lab	1	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142	Intermed Calc with Analytic Geom (B3)	4	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
GER 112	Intensive Beginning German II	4	
		<b>18</b>	

## Sophomore Year Fall Semester

Course Code	Description	Cr	
CHE 212	Chemical Process Calculations	3	
CHM227	Organic Chemistry Lec I	3	
ECN 201	Principles of Microeconomics (A2)	3	
MTH 243	Calculus for Funcs. of Sev. Vars. (A1, B3)	3	
	General Education Outcome(s)*	3	
GER 113	Intensive Intermediate German I	4	
		<b>19</b>	

## Sophomore Year Spring Semester

Course Code	Description	Cr	
CHE 232	Materials Science and Engineering	3	
CHE 272	Intro to Chemical Engineering Calculations	3	
CHE 313	Chemical Engineering Thermodynamics I	3	
CHM 228 <i>or</i> CMB 311	Organic Chemistry Lec II <i>or</i> Introductory Biochemistry	3	
MTH 244	Differential Equations	3	
GER 114	Intensive Intermediate German II	4	
		<b>19</b>	

## Junior Year Fall Semester

Course Code	Description	Cr	
CHE 314	Chemical Engineering Thermodynamics II	3	
CHE 347	Transfer Operations I	3	
CHM 335	Physical Chemistry Lab	2	
CHM 431	Physical Chemistry I	3	
	Approved Mathematics Elective**	3	
GER 205	Conversation and Composition	3	
		<b>17</b>	

## Junior Year Spring Semester

Course Code	Description	Cr	
CHE 348	Transfer Operations II	3	
CHE 364	Chemical Kinetics and Reactor Design	3	
CHM 432	Physical Chemistry II***	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
GER 206	Conversation and Composition	3	
		<b>18</b>	

## Semester Abroad

Course Code	Description	Cr	
GER/EGR 411	Technical German/Professional Elective	3	
GER 3XX		4	
GER 3XX <i>or</i> GER 4XX		3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		<b>16</b>	

## International Internship Semester

Course Code	Description	Cr	
GER 315-316	Language Study Abroad	3-6	
		<b>3-6</b>	

## Senior Year Fall Semester

Course Code	Description	Cr	
CHE 345	Chemical Engineering Lab I	2	
CHE 425	Process Dynamics and Control	3	
CHE 428	Professional Experience	1	
CHE 449	Transfer Operations III	3	
CHE 451	Plant Design and Economics I	3	
	Approved Professional Elective****	3	
GER 4XX		3	
		<b>18</b>	

## Senior Year Spring Semester

Course Code	Description	Cr	
CHE 346	Chemical Engineering Lab II	2	
CHE 452	Plant Design and Economics II	3	
	Approved Professional Elective****	3	
	Approved Professional Elective****	3	
	General Education Outcome(s)*	3	
GER 4XX		3	
		<b>17</b>	

**Specified Math, Science, and Engineering Courses**

Introductory Engineering					
Sem	Course	Cr	Grade	QP	Note
	EGR 105 (A4)	1			
	EGR 106 (A4)	2			
		3			

Mathematics					
Sem	Course	Cr	Grade	QP	Note
	MTH 141 (A1 & B3)	4			
	MTH 142 (B3)	4			
	MTH 243 (A1 & B3)	3			
	MTH 244	3			
		14			

Natural Sciences					
Sem	Course	Cr	Grade	QP	Note
	CHM 101 (A1)	3			
	CHM 102	1			
	CHM 112	3			
	CHM 114	1			
	CHM 227	3			
	CHM 228 or CMB 311	3			
	CHM 335	2			
	CHM 431	3			
	CHM 432***	3			
	PHY 203 (A1)	3			
	PHY 273 (A1)	1			
	PHY 204 (A1)	3			
	PHY 274 (A1)	1			
		30			

Engineering Science and Design (Major)					
Sem	Course	Cr	Grade	QP	Note
	CHE 212	3			
	CHE 232 (332)	3			
	CHE 272	3			
	CHE 313	3			
	CHE 314	3			
	CHE 345 [capstone]	2			
	CHE 346 [capstone]	2			
	CHE 347	3			
	CHE 348	3			
	CHE 364 (464)	3			
	CHE 425	3			
	CHE 428 (328)	1			
	CHE 449 (349)	3			
	CHE 451 (351) [capstone]	3			
	CHE 452 (352) [capstone]	3			
		41			

****Professional Elective					
Sem	Course	Cr	Grade	QP	Note
		3			
		3			
		3			
		3			
		12			

**Mathematics Elective					
Sem	Course	Cr	Grade	QP	Note
		3			

\* **General Education Outcomes:** at least 40 credits must be completed. (A1-D1) must be met by at least three credits. A single course may satisfy one or two outcomes, and at least one course must be a "Grand Challenge". No more than twelve credits can be from the same course code except HPR (ie: only four 3-credit GER classes OR three 4-credit GER classes may be used to fulfill General Education Outcomes). General education courses may also be used to meet requirements of your major(s) or minor(s) when appropriate.

\*\***Mathematics Elective:** MTH 215 or any 300-, 400-, or 500-level MTH course except 381

\*\*\*Or approved **Professional Elective** (see \*\*\*\* below)

\*\*\*\***Professional elective:** Half of the Professional Electives are to be 400-level or higher CHE courses taken at URI. In addition EGR 325 and EGR 326 are permissible approved professional electives. The remaining courses are to be 300-level or higher 400-level or higher in engineering (BME, CHE, CPE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. *All require prior approval by CHE advisor.*

German Language Requirements					
GER 101, 102, & 111 will not count toward major requirements.					
Sem	Course	Cr	Gr	QP	
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER 4__	3			
	6 Credits in Literature, at least 3 at 400-level				
	GER ____	3			
	GER 4__	3			
		30			

General Education Outcome Audit		
	Course	Credit
<b>Knowledge</b>		
A1. STEM	CHM & PHY (see above)	11
A2. Social & Behavioral Sciences	ECN 201	3
A3. Humanities	GER 205/206 (suggested)	3
A4. Arts & Design	EGR 105 & 106	3
<b>Competences</b>		
B1. Write Effectively		
B2. Communicate Effectively		
B3. Mathematical, statistical, or computational strategies	MTH (see above)	11
B4. Information literacy		
<b>Responsibilities</b>		
C1. Civic knowledge & responsibilities		
C2. Global responsibilities	GER 205/206 (suggested)	3
C3. Diversity and Inclusion		
<b>Inegrate &amp; Apply</b>		
D1. Ability to synthesize	CHE 452	3
<b>Grand Challenge</b>		
G. Check that at least one course of your 40 credits is an approved "G" course		
Total General Education Outcome Credits		40