

## Electives (12 credits)

CENG Electives x 4 chosen from:

### Area 1: Chemical Process Design

CENG 4130 Plant Design and Economics  
 CENG 4140 Energy Resources, Conversions and Technologies  
 CENG 4620 Bioproducts and Processing  
 CENG 4630 Food Processing Technology  
 CENG 4670 Pharmaceutical Engineering  
 CENG 4710 Environmental Control

### Area 2: Chemical Product Design

CENG 4540 Nanomaterials and Applications in ChE  
 CENG 4640 Biomolecular Engineering  
 CENG 4650 Biomaterials, Drug Delivery and Tissue Engineering  
 CENG 4950 CHEM-E-CAR (Pre-approved elective)  
 CHEM 2311 Analytical Chemistry

## Final Year Project (6 credits)

[6] CENG4920 (Capsone)  
 Or [6] CENG4930\* (Research)  
 Or [6] CENG4940 (Co-op)

## Research Option (6 credits)

[3] CENG4980 and  
 [3] CENG4980 or any  
 5000-level course in  
 CENG or BIEN)

\*Students taking the  
 Research Option must  
 take CENG4930

## Credit Requirement

CENG Major: 87-91

Common Core: 36

(9 credits of double-counting allowed)

Pre-requisite →

Co-requisite - - - - - →

Fall Offering

Spring Offering

Offering in both semester

Year Long

## Introduction (6 credits)

Intro. to CBE  
 [3] CENG1000

Or

Materials  
 [3] CENG1500

Intro to Envr. Engg.  
 [3] CENG1700

Or

Intro to BME  
 [3] BIEN1010

Or

Biotechnology  
 [3] CENG1600

## ChE Design (14 credits)

Integrated Process and Product Design  
 [5] CENG3150

Process Dyn. & Control  
 [3] CENG3110

Process & Product Design Principles  
 [3] CENG2110

Modeling for Chemical & Biological  
 Engineering [3] CENG2310

Separation  
 Process  
 [3] CENG3210

Transport II  
 [3] CENG3220

Transport I  
 [3] CENG2220

## ChE Science (15 credits)

Reaction and  
 Reactor Engg.  
 [3] CENG3230

CBE Thermo.  
 [3] CENG2210

## Others (6 credits)

Industrial Training  
 (modules throughout 4 years)  
 [0] CENG1980

Academic &  
 Professional  
 Development  
 [0] CENG1010  
 & CENG4020

Engineering  
 Seminars  
 [0] ENGG1010  
 & ENGG2010

Tech. Comm.  
 II [3]  
 LANG4035

Tech. Comm.  
 I [3]  
 LANG2030

## Math. & Science (24-28 credits)

Intro to Comp [3-4]  
 COMP1021 or  
 COMP1022P or  
 COMP2011 or  
 COMP2012H

Biology [3]  
 BIEN2410/BIEN2610  
 /LIFS1901

Calculus I [3-4]  
 MATH1012/1013/  
 1023

Calculus II [3]  
 MATH1014/1024

Or  
 Acc. Calculus  
 [4] MATH1020

Multivariable  
 Calculus  
 [3] MATH2011

General Phys. I [3]  
 PHYS1112/PHYS1312

General Chem. I [3]  
 CHEM1010/1020

Organic  
 Chem. [3]  
 CHEM2111

General Chem. Lab [1]  
 CHEM1050

Org Chem.  
 Lab [1]  
 CHEM2155