## Credit Requirement

<table>
<thead>
<tr>
<th>CENG Major: 87-91</th>
<th>Common Core: 36 (9 credits of double-counting allowed)</th>
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<tbody>
<tr>
<td>Pre-requisite</td>
<td>Co-requisite</td>
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### 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 4660 Biomolecular Engineering
  - CENG 4650 Biomaterials, Drug Delivery and Tissue Engineering
  - CENG 4660 Introduction to Biomicrosystem
  - CHEM 2311 Analytical Chemistry
  - CENG 4950 CHEM-E-CAR (Pre-approved elective)

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

- **Biology [3]**
  - BIEN2410/BIEN2610/LIFS1901
- **Calculus I [3-4]**
  - MATH1012/1013/1023
- **Calculus II [3]**
  - MATH1014/1024
- **Acc. Calculus [4]**
  - MATH1020
- **General Chem. I [3]**
  - CHEM1010/1020
- **General Chem. Lab [1]**
  - CHEM1050

### Introduction (6 credits)

- **Intro. to CBE [3]**
  - CENG1000
- **Or**
  - Intro to Envr. Engg. [3]
  - CENG1700
  - Or
  - Intro to BME [3]
  - BIEN1010
  - Or
  - Biotechnology [3]
  - CENG1600
- **Intro to Comp [3-4]**
  - COMP1021 or COMP1022P or COMP2011

### ChE Design (14 credits)

- **Intro to CBE** [3] CENG1000
- **Intro to Envr. Engg.** [3] CENG1700
  - Or
  - Intro to BME [3] BIEN1010
  - Or
  - Biotechnology [3] CENG1600
- **Process Dyn. & Control** [3] CENG3110
- **Modeling for Chemical & Biological Engineering** [3] CENG2310
- **CBE Thermo.** [3] CENG2210
- **Transport I** [3] CENG3220
- **Transport II** [3] CENG3220
- **Separation Process** [3] CENG3210
- **Reaction and Reactor Engg.** [3] CENG3230

### ChE Science (15 credits)

- **Materials** [3] CENG1500
  - Or
  - Intro to BME [3] BIEN1010
  - Or
  - Biotechnology [3] CENG1600
- **Bioengineering** [3] BIEN1500
- **Or**
  - Int. to Env. Engg. [3] CENG1700
  - Or
  - Intro to BME [3] BIEN1010
  - Or
  - Biotechnology [3] CENG1600
- **Intro to CBE** [3] CENG1000
- **Reaction and Reactor Engg.** [3] CENG3230
- **Separation Process** [3] CENG3210
- **Transport I** [3] CENG3220
- **Transport II** [3] CENG3220
- **Process Dyn. & Control** [3] CENG3110
- **Modeling for Chemical & Biological Engineering** [3] CENG2310

### Final Year Project (6 credits)

- [6] CENG4902 (Capstone)
- 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

### Lab (4 credits)

- Chemical & Environmental Engg Lab [4] CENG3950

### Others (6 credits)

- **Tech. Comm. II [3]**
  - LANG4035
- **Engineering Seminars**
  - [0] ENGG1010 & ENGG2010
- **Tech. Comm. I [3]**
  - LANG2030
- **Industrial Training**
  - (modules throughout 4 years)
  - [0] CENG1980
- **Academic & Professional Development**
  - [0] CENG1010 & CENG4020
- **Or**
  - **Tech. Comm. I [3]**
  - LANG2030

### Updated on: 24-Jun-2021