

CHEMICAL ENGINEERING

| Fall Quarter | Units | Winter Quarter | Units | Spring Quarter | Units |
|--|--------------|---|--------------|--|--------------|
| FIRST YEAR | | | | | |
| CEE 010 <i>Intro to Chem. & Envir. Engineering</i> | 1 | CHEM 001B & CHEM 01LB <i>General Chemistry & Lab</i> | 5 | CHEM 001C & CHEM 01LC <i>General Chemistry & Lab</i> | 5 |
| CHEM 001A & CHEM 01LA <i>General Chemistry & Lab</i> | 5 | ENGL 001B <i>Intermediate Composition</i> | 4 | ENGL 001C or Alternate* <i>Applied Intermediate Composition</i> | 4 |
| ENGL 001A <i>Beginning Composition</i> | 4 | MATH 009B <i>First Year Calculus</i> | 4 | MATH 009C <i>First Year Calculus</i> | 4 |
| MATH 009A <i>First Year Calculus</i> | 4 | PHYS 040A <i>Physics (Mechanics)</i> | 5 | PHYS 040B <i>Physics (Heat/Waves/Sound)</i> | 5 |
| SECOND YEAR | | | | | |
| CHE 110A <i>Chemical Process Analysis</i> | 3 | CHE 110B <i>Chemical Process Analysis</i> | 3 | MATH 010B <i>Multivariable Calculus</i> | 4 |
| CHEM 008A & CHEM 08LA <i>Organic Chemistry</i> | 4 | CHEM 008B & CHEM 08LB <i>Organic Chemistry</i> | 4 | CHEM 008C & CHEM 08LC <i>Organic Chemistry</i> | 4 |
| MATH 046 <i>Differential Equations</i> | 4 | MATH 010A <i>Multivariable Calculus</i> | 4 | CS 010 <i>C++ Programming</i> | 4 |
| PHYS 040C <i>Physics (Electricity/Magnetism)</i> | 5 | CHE 100 <i>Engineering Thermodynamics</i> | 4 | Breadth _____ <i>Humanities/Social Sciences</i> | 4 |
| THIRD YEAR | | | | | |
| BIOL 005A & BIOL 05LA <i>Cell & Molecular Biology & Lab</i> | 5 | CEE 158 <i>Professional Development for Engr</i> | 3 | CHE 116 <i>Heat Transfer</i> | 4 |
| CEE 135 <i>Chemistry of Materials</i> | 4 | CHE 120 <i>Mass Transfer</i> | 4 | CHE/ENVE 130 <i>Advanced Engr. Thermodynamics</i> | 4 |
| CHE 114 <i>Applied Fluid Mechanics</i> | 4 | CHE 105 <i>Intro to Nanoscale Engineering</i> | 4 | CHE/ENVE 160A <i>Chem. & Envir. Engineering Lab</i> | 3 |
| ENGR 118 <i>Engineering Modeling & Analysis</i> | 5 | Breadth _____ <i>Humanities/Social Sciences</i> | 4 | CHE 122 <i>Chemical Engineering Kinetics</i> | 4 |
| FOURTH YEAR | | | | | |
| CHE 117 <i>Separation Processes</i> | 4 | CHE 118 <i>Process Dynamics and Control</i> | 4 | CHE 161 <i>Nanotechnology Processing Lab</i> | 3 |
| CHE 160B <i>Chemical Engineering Lab</i> | 3 | CHE 160C <i>Chemical Engineering Lab</i> | 3 | CHE 175B <i>Chemical Process Design</i> | 4 |
| Technical Elective** _____ | 4 | CHE 175A <i>Chemical Process Design</i> | 4 | Technical Elective** _____ | 4 |
| Breadth _____ <i>Humanities/Social Sciences</i> | 4 | Breadth _____ <i>Humanities/Social Sciences</i> | 4 | Breadth _____ <i>Humanities/Social Sciences</i> | 4 |
| Breadth _____ <i>Humanities/Social Sciences</i> | 4 | | | | |

To earn a B.S., you must complete all College and University requirements. For a full list of requirements, go to catalog.ucr.edu.

ENGLISH COMPOSITION*

A C or better is required in all English Composition courses to satisfy the graduation requirement. Please consult with your Academic Advisor for ENGL 1C alternatives.

BREADTH REQUIREMENTS

For an approved list of Breadth courses, go to <http://student.engr.ucr.edu/policies/requirements/breadth.html>.

Humanities: (3 courses)

- A. World History: _____
- B. Fine Arts, Lit., Phil. or Rlst: _____
- C. Human Persp. on Science: _____

Social Sciences: (3 courses)

- A. Econ. or Posc.: _____
- B. Anth., Psyc, or Soc.: _____
- C. General Social Science: _____

Ethnicity: (1 course)

- 1. _____

Upper Division: (2courses)

- 1. _____
- 2. _____

TECHNICAL ELECTIVES **

Please note that Technical Electives may be offered throughout the Academic Year. Consult with your Faculty MEntor about potential offerings. See approved technical electives on back.

Course Plan is subject to change.

Total Units: 194
Maximum units: 222

Chemical Engineering-Nanotechnology Option Technical Electives

You must complete 8 units of Technical Elective coursework. Select from the list below:

| Course | Course Title (Units) |
|----------|--|
| CHE 102 | Catalytic Reaction Engineering (4) |
| CHE 131 | Electrochemical Engineering (4) |
| ENVE 133 | Fundamentals of Air Pollution Engineering (4) |
| ME 114 | Intro to Materials Science and Engineering (4) |
| MSE 160* | Nanostructure Characterization Lab (4) |
| MSE 161* | Analytic Materials Characterization (4) |