

# CHEMICAL ENGINEERING

**Associate Professor Martha C. Mitchell\***, interim department head  
**Professor Richard L. Long\*#**, associate department head

**Professors** Long\*#, Johnson, Munson-McGee, Patton (emeritus), Roubicek (emeritus); **Associate Professors** Andersen, Mitchell\*, Rockstraw\*; **Assistant Professors** Deng; **College Professor** Del Valle  
 (505) 646-1214

\*Registered Professional Engineer (NM)

#Registered Professional Engineer (State other than NM)

## DEGREE: Bachelor of Science in Chemical Engineering

Chemical engineers combine their knowledge of science, mathematics, and physics with their expertise in engineering analysis to solve industry-level problems in both the private and public sectors. An undergraduate degree leads to an exciting career in fields such as computer chip manufacturing; environmental restoration and pollution prevention; biotechnology and bio-engineering; pharmaceutical manufacturing; food production; transportation (including automotive and aerospace); advanced materials; petrochemical and refining; chemical synthesis and production; power and energy production (including the nuclear industry); law, medicine or advanced studies at the graduate level.

In support of the mission of New Mexico State University, the Department of Chemical Engineering strives to prepare Chemical Engineering Bachelor of Science graduates to successfully and safely practice the chemical engineering profession, to engage in life-long personal and professional development, and to contribute to the betterment of their community and society.

To accomplish this mission, the department supports the objectives of the college and the university and expands the objectives to satisfy the needs of the Chemical Engineering constituent groups. The department strives to achieve the objectives of providing all graduating B.S. students with

1. a solid foundation in the fundamentals of chemical engineering science, design, and practice;
2. a sound base in chemistry, mathematics, and physics;
3. an opportunity to explore advanced disciplines pertinent to career choice;
4. an opportunity to participate on multidisciplinary teams;
5. the opportunity and training to develop the written and oral communication skills required of a practicing engineer;
6. The opportunity to develop and comprehend professional and ethical behavior, to develop an understanding of the humanities and social sciences, and to develop the skills to engage in lifelong learning.

These objectives are consistent with those of the College of Engineering and New Mexico State University in their commitment to developing student excellence in an intellectually stimulating environment, cultural diversity, and broad education programs, while encouraging individual expression, professional behavior, civic responsibility, leadership, and an appreciation for continuing education.

### The NMSU curriculum meets ABET accreditation requirements.

#### Requirements (Total credits 135)

In addition to satisfying the requirements of the university and the College of Engineering, all majors must pass departmental classes with a grade of C or better.

#### Freshman Year (31 credits)

CH E 100, Introduction to Engineering.....	1
CH E 111, Introduction to Computers in Chemical Engineering .....	3
CHEM 115, 116, Principles of Chemistry I, II.....	8
COMM 265G, Principles of Human Communication .....	3
ENGL 111G, Rhetoric and Composition.....	4
MATH 191, 192, Calculus and Analytic Geometry I, II.....	6
PHYS 215, Engineering Physics I.....	3
Humanities or social science elective <sup>1</sup> .....	3

#### Sophomore Year (34 credits)

CH E 201, Chemical Process Calculations .....	5
CH E 301, Chemical Engineering Thermodynamics I .....	3

CH E 305, Transport Operations I: Fluid Flow.....	3
CH E 311, Engineering Data Analysis .....	3
CHEM 313, 314, 315, Organic Chemistry I, II, Lab .....	8
ENGL 218G, Technical and Scientific Communication .....	3
MATH 291, Calculus and Analytic Geometry III.....	3
MATH 392, Differential Equations.....	3
PHYS 216, Engineering Physics II.....	3

#### Junior Year (34 credits)

CH E 302, Chemical Engineering Thermodynamics II.....	3
CH E 306, Transport Operations II: Heat and Mass Transfer .....	3
CH E 307, Transport Operations III: Staged Operations.....	3
CH E 315L, Process Instrumentation Lab .....	2
CH E 361, Engineering Materials .....	3
CH E 407L, Transport Operations Lab .....	2
CH E 441, Chemical Kinetics and Reaction Engineering .....	3
CH E 451, Engineering Economy .....	3
CHEM 433, Physical Chemistry I.....	3
ECON 251G, Principles of Macroeconomics.....	3
Humanities or social science electives <sup>1</sup> .....	6

#### Senior Year (36 credits)

CH E 412, Process Control and Dynamics.....	3
CH E 422L, Unit Operations and Process Control Lab.....	2
CH E 452, Process Design, Analysis and Simulation.....	4
CH E 455, Advanced Plant Design.....	2
CH E 490, Senior Seminar .....	1
CH E upper-division elective .....	3
CHEM or natural science elective <sup>2, 3</sup> .....	3
CHEM elective <sup>2</sup> .....	3
EE 201, Networks I.....	3
ME 236, Engineering Mechanics I .....	3
Engineering elective <sup>4</sup> .....	3
Humanities or social sciences electives <sup>1</sup> .....	6

<sup>1</sup>Humanities and social science electives must be selected to satisfy the university's general education requirements.

<sup>2</sup>Any upper-division chemistry class that would be acceptable for a B.S. in Chemistry that requires at least CHEM 112 as a prerequisite except for: CHEM 351, CHEM 441, CHEM 451, or CHEM 455.

<sup>3</sup>Other upper-division natural science class (such as toxicology or biology) with prior approval of your adviser.

<sup>4</sup>Upper-division engineering course selected with prior approval of adviser.

# CIVIL ENGINEERING

**Professor Kenneth R. White\***, department head

**Professor J. Phillip King\***, associate department head

**Professors** Cadena-C\* Hanson#; Idriss\*, Jacques\*, Khandan#, Samani#, White\*, Woodward\*; **Assistant Professors** Bandini, Bawazir, Jauregui, McNamara, Newton, Zhang; **College Professor** Madrid\*, Zellmer\*#; **Adjunct Professor** Hernandez\*##

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# Registered Professional Engineer (State other than NM)

## Registered Land Surveyor (State other than NM)