UNM SCHOOL of ENGINEERING

Bachelor of Science in Chemical Engineering (B.S.Ch.E.)

Concentration: Chemical Process Engineering

Department of Chemical & Biological Engineering

Credit hours required for graduation: 123 (1) (2)

Catalog Year: 2015-2016

FRESHMAN YEAR

FALL SEMESTER

CBE 101	Introduction to Chemical Engineering and Biological Engineering	1
CHEM 121	General Chemistry I	3
CHEM 123L	General Chemistry I Laboratory	1
ENGL 110 (or 112 or 113)	Accelerated Composition (or Composition II or Enhanced Composition)	3
MATH 162	Calculus I(1)	4
	Core Humanities Elective(3)	3
	Total Semester Hours:	15

SPRING SEMESTER

CHEM 122	General Chemistry II	3
CHEM 124L	General Chemistry II Laboratory	1
ENGL 120	Composition III	3
MATH 163	Calculus II(1)	4
PHYC 160	General Physics(1)	3
	Core Social and Behavioral Science Elective(3)	3
	Total Semester Hours:	17

SOPHOMORE YEAR

FALL SEMESTER

CBE 251	Chemical Process Calculations(1)	3
CHEM 301	Organic Chemistry	3
CHEM 303L	Organic Chemistry Laboratory	1
MATH 264	Calculus III(1)	4
PHYC 161	General Physics(1)	3
	Total Semester Hours:	14

SPRING SEMESTER

CBE 253	Chemical Process Calculations II(1)	3
CBE 302	Chemical Engineering Thermodynamics(1)	3
ECON 105	Introductory Macroeconomics(4)	3
MATH 316	Applied Ordinary Differential Equations(1)	3
CHEM 302	Organic Chemistry	3
	Total Semester Hours:	15

JUNIOR YEAR

FALL SEMESTER

CBE/NE 311	Introduction to Transport Phenomena(1)	3
CBE 317	Numerical Methods for Chemical and Biological Engineering(1)	2
CBE 318L	Chemical Engineering Laboratory I(1)	1
CBE 361	Biomolecular Engineering	3
ENGL 219	Technical and Professional Writing	3
CHEM 311	Physical Chemistry	3
	Total Semester Hours:	15

SPRING SEMESTER

CBE/NE 312	Unit Operations(1)	3
CBE 321	Mass Transfer(1)	3
CBE 319L	Chemical Engineering Laboratory II(1)	1
CBE 371	Introduction to Materials Engineering	3
ENG 301	Fundamentals of Engineering: Dynamics	1
ENG 302	Fundamentals of Engineering: Electronic Circuits	1
CHEM 312	Physical Chemistry	3
	Total Semester Hours:	15

SENIOR YEAR

FALL SEMESTER

CBE 418L	Chemical Engineering Laboratory III(1)	1
CBE 454	Process Dynamic and Control(1)	3
CBE 461	Chemical Reactor Engineering(1)	3
CBE 486	Introduction to Statistics and Design of Experiments(1)	2
CBE 493L	Chemical Engineering Design(1)	3
	Technical Elective(6)	3
	Total Semester Hours:	15

SPRING SEMESTER

CBE 419L	Chemical Engineering Laboratory IV(1)	1
CBE 451	Senior Seminar(1)	1
CBE 494L	Advanced Chemical Engineering Design(1)	3
	Technical Elective - Engineering(6)	3
	Core Fine Arts Elective(3)	3
	Core Humanities Elective(3)	3
	Core Second Language Elective(3)	3
	Total Semester Hours:	17

(1) Only courses with grades of "C-" or better may be applied toward the B.S.Ch.E. Courses with this footnote are prerequisites for other classes, and must be taken in the sequence listed. CBE classes are generally only offered in the semester listed, hence skipping a core CBE class could delay graduation by one year. Students are encouraged to sign up for independent study, CBE 491/492 which provide academic credit for doing research under the supervision of a CBE faculty member.

(2) Students must file an application for the B.S.Ch.E. degree prior to the completion of 95 credit hours of applicable courses.

(3) Students should consult with advisors to obtain a list of acceptable core humanities, social/behavioral science, fine arts and second language electives. These courses may be taken whenever convenient. Grade must be "C" or better.

(4) ECON 105 may be taken in either the sophomore or junior year.

(5) A minimum of 9 credit hours of advanced chemistry and/or biology courses. CHEM **312 is required for all concentrations. For the other classes, select from among CHEM **302, **311, *431; Chemistry and Physics at the Nanoscale; BIOL 201; or other approved courses, depending upon the student's area of concentration. The courses chosen must represent a logical sequence of courses for the concentration and must be approved by an academic advisor.

(6) Technical electives are chosen from upper-division courses approved by the chemical engineering program advisors. A list of approved technical electives is available on the Department Web site. One of these electives must be a class taught from within the School of Engineering, and the other elective may be taught from within either the School of Engineering or the College of Arts and Sciences. The department requires that these courses be part of an approved concentration. The chairperson may allow up to 6 credit hours of technical electives for students taking required ROTC courses in aerospace or naval science. One technical elective can be replaced by a research project done under the supervision of a CBE faculty member and requires advance approval by the undergraduate advisor.

(7) Students are encouraged to take the Fundamentals of Engineering (FE) Examination during their senior year. This is the first formal step toward professional registration.