

CHEMICAL ENGINEERING

SOLUTIONS FOR A BETTER WORLD

Academic Plan for 2016-17

What can you do as a Chemical Engineer?

Chemical engineering combines the three basic physical sciences with mathematics and the discipline of engineering. This creates a unique versatility to solve problems and increase efficiency in a very broad spectrum of fields. One of the most attractive aspects of a chemical engineering future is the variety of work available to you, making it one of the highest areas of demand.

The American Institute of Chemical Engineers (AIChE) has suggested the following definition of a chemical engineer: Chemical Engineers use science and mathematics, especially chemistry, biochemistry, applied mathematics and engineering principles, to take laboratory or conceptual ideas and turn them into value added products in a cost effective, safe (including environmental) and cutting edge process. From the development of smaller, faster computer chips to innovations in recycling, treating disease, cleaning water, generating energy, and developing artificial organs.

Chemical engineers are employed by both governmental agencies and private companies in a variety of fields including pulp & paper, chemical manufacturing, oil & gasoline, energy resources, biotechnology, medicine, law, electronic materials, pharmaceuticals, polymers, materials, textiles, food products, combustion processes, agricultural products, environmental protection, and more.



Undergraduate Program

The Bachelor of Science (B.S.) degree in chemical engineering from the University of Idaho prepares you to play a crucial role in the production of high-demand products. Our faculty are recognized world-wide for their excellence in teaching and research. Their commitment to excellence provides you with the very best opportunities for realizing your own academic pursuits.

During your first two years, you will build a strong foundation in chemistry, math, and physics courses. Upper division courses will teach you how to apply these principles to engineering applications and prepare you to design your own solutions to many of the world's chemical, biological, and material challenges.

Most chemical engineering students earn their undergraduate degree in four years; however, some students like the flexibility that a five-year plan provides.

College of Engineering

Department of Chemical & Materials Engineering
Buchanan Engineering Lab (BEL) 308
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FRESHMAN - FALL			FRESHMAN - SPRING		
CHE 110	Intro. to Chemical Engineering (Fall Only)	1	CHEM 112*	Principles of Chemistry II <i>Chem 111</i>	5
CHE 123	Computations in ChE (Fall Only) <i>Math 143 or sufficient test scores</i>	2	MATH 175	Analytic Geometry & Calculus II <i>Math 170</i>	4
CHEM 111*	Principles of Chemistry I <i>Math 143 or sufficient test scores</i>	4	PHYS 211	Engineering Physics I (no lab) <i>Math 170</i>	3
ENGL 102	College Writing and Rhetoric <i>English 101 or sufficient test scores</i>	3	CS 120+	Programming Elective	3+
MATH 170	Analytic Geometry & Calculus I <i>Math 143 & 144 or sufficient test scores</i>	4	ELECTIVE	Humanities/Social Science/ International Elective	3
ISEM 101	Integrated Seminar	3			
	Total Credits	17		Total Credits	18
SOPHOMORE - FALL			SOPHOMORE- SPRING		
CHEM 277	Organic Chemistry I (Fall Only) <i>Chem 112</i>	3	CHEM 372	Organic Chemistry II (Spring Only) <i>Chem 277</i>	3
CHEM 278	Organic Chemistry I Lab <i>Chem 277</i>	1	CHEM 374	Organic Chemistry II Lab <i>Chem 372</i>	1
ENGR 210*	Engineering Statics <i>Math 170</i>	3	CHE 223*	Material & Energy Balances <i>Chem 112, Math 175</i>	3
MATH 275*	Analytic Geometry & Calculus III <i>Math 175</i>	3	ENGR 320*	Thermodynamics & Heat Transfer <i>(Math 31 and ENGR 210 recommended)</i>	3
PHYS 212	Engineering Physics II (no lab) <i>Phys 211 Math 175</i>	3	ENGR 335*	Fluid Mechanics <i>Engr 210, Math 275</i>	3
CHE 210	Integrated ChE (Fall Only) <i>ChE 110 and 123</i>	1	MATH 310*	Ordinary Differential Equations <i>Math 175 (Math 275 recommended)</i>	3
ECON	Economics Elective (201, 202 or 272)	3+		Total Credits	16
	Total Credits	17			
JUNIOR - FALL			JUNIOR - SPRING		
CHEM 305	Physical Chemistry (Fall Only) <i>Chem 112 & Math 275, Phys 212</i>	3	CHE 330	Separation Processes I <i>ChE 326, Chem 305</i>	3
CHEM 307	Physical Chemistry Lab <i>Chem 305</i>	1	CHE 341	Transport & Rate Processes II <i>ChE 340</i>	4
CHE 326	Chemical Engineering Thermodynamics <i>ChE 223, Engr 320 & 335, Math 310, Chem 305</i>	3	CHE 423	Reactor Kinetics & Design <i>Math 310, ChE223, Chem 305</i>	3
CHE 340	Transport and Rate Processes I <i>Engr 335, Math 310, ChE223 or MSE 201</i>	4	ELECTIVE	Communication Elective	2-3
ENGR 240	Introduction to Electrical Circuits <i>Math 175, Phys 211/211L</i>	3	ELECTIVE	Chemical/Bioscience Elective + lab	4
MATH	Mathematics Elective 300 or higher	3	ISEM 301	Integrated Seminar	1
	Total Credits	17		Total Credits	17-18
SENIOR - FALL			SENIOR- SPRING		
CHE 433	Chemical Engineering Lab I <i>ChE 330, 341, 423</i>	1	CHE 434	Chemical Engineering Lab II	1
CHE 444	Process Analysis & Control <i>ChE 223, Math 310</i>	3	CHE 445	Digital Process Control	3
CHE 453	Process Analysis & Design I	3	CHE 454	Process Analysis & Design II (Capstone Core)	3
CHE 491	Seminar	1	ELECTIVE	Technical Elective 300 or higher	3
ELECTIVE	Humanities/Social Science Elective with American Diversity	3	ELECTIVE	Technical Elective 300 or higher	3
ELECTIVE	Upper Division Chemical or Materials Engineering Elective 390 or higher	3	ELECTIVE	Humanities/Social Science Elective	3
	Total Credits	14		Total Credits	16

Courses in gold are prerequisites Courses in italics are co-requisites

Updated 8/16

*A grade of C or better is required in courses before registration is permitted in upper division chemical engineering courses.

- Other courses also required for upper division enrollment. See course catalog for complete degree requirements.