Washington University in St. Louis

Bachelor of Science in Chemical Engineering

The Bachelor of Science in Chemical Engineering (BSChE) degree program is designed to provide students with comprehensive training in chemical engineering fundamentals. This degree program is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org). The BSChE degree requires the satisfactory completion of a minimum of 126 units as indicated in the BSChE Requirements table below. Of the courses listed in that table, the humanities and social sciences courses (except Engr 450X courses) may be taken pass/fail.

The program of study consists of 25 units of physical and biological sciences (i.e., biology, chemistry and physics); 24 units of mathematics and engineering computing; 38 units of core chemical engineering courses; 21 units of humanities, social sciences and technical writing; and 18 units of chemical engineering electives. The chemical engineering electives permit students to tailor their studies toward specific goals such as obtaining more depth in a chemical engineering subdiscipline (e.g., materials) or increasing breadth by choosing courses from different subdisciplines. Some of these 18 units may be taken in other engineering departments or in the natural sciences or physical sciences. Students, in collaboration with their advisors, design a course of study (subject to certain requirements) for the chemical engineering electives. Consult the EECE department website (https://eece.wustl.edu/academics/undergraduate-programs/BS-in-Chemical-Engineering.html) for more details, including the requirements that must be satisfied by these chemical engineering electives.

BSChE Requirements

Total Units Required: 126

Biological Science	Units
Biology in EECE (EECE 306) or Principles of Biology I (Biol 2960)	3 or 4
Unit Subtotal	**3 or 4**

Mathematics & Computing	Units
Calculus II, III (Math 132, Math 233)	6
Differential Equations (Math 217)	3
Engineering Mathematics A, B (ESE 318, ESE 319)	6
Introduction to Computer Science (CSE 131)	3
Engineering Statistics with Probability (Engr 328) or Probability and Statistics for Engineering (ESE 326)	3
Computational Modeling in Energy, Environmental and Chemical Engineering (EECE 202)	3
Unit Subtotal	**24**

Chemical Engineering Core	Units
Introduction to Energy, Environmental and Chemical Engineering (EECE 101)	3
Process Analysis and Thermodynamics (EECE 205)	4
Thermodynamics II in EECE (EECE 204)	3
Transport Phenomena I: Basics and Fluid Mechanics (EECE 301)	3
Transport Phenomena II: Energy and Mass Transfer (EECE 307)	4
Mass Transfer Operations (EECE 304)	3
Materials Science (EECE 305)	3
Chemical Process Dynamics and Control (EECE 401)	3
Chemical Reaction Engineering (EECE 403)	3
Unit Operations Laboratory (EECE 405)	4
Process Design, Economics and Simulation (EECE 409)	2
ChE Capstone (EECE 402)	3
Unit Subtotal	**38**

Other	Units
Chemical Engineering electives (some of these courses can be taken outside the EECE department)	18
Engineering Ethics and Sustainability (Engr 4501)	1
Engineering Leadership and Team Building (Engr 4502)	1
Conflict Management and Negotiation (Engr 4503)	1
Humanities and social sciences electives	15
Technical Writing (Engr 310)	3
Unit Subtotal	**39**

Program Educational Objective

The Program Educational Objective for the BSChE degree program is that, within a few years of graduation, graduates will do the following:

1. Engage in professional practice, and/or
2. Attain advanced knowledge through graduate education or professional training in chemical engineering or their chosen field.

All will use their knowledge, skill, and abilities to serve society in a way that promotes equity and sustainability and additionally pursue activities that promote professional growth and fulfillment.