

CHEMICAL ENGINEERING (B.S.) - RESIDENT

Important: This degree plan is effective for those starting this degree program in fall 2026 through summer 2027. This degree plan will remain in effect for students who do not break enrollment or who do not change degree programs, concentrations, or cognates.

General Education/Foundational Skills Requirements

Code	Title	Hours
Communication & Information Literacy ¹		
ENGL 101	Composition and Rhetoric	3
	Communications Elective	3
	Information Literacy Elective	3
	Information Literacy Elective	3
Technological Solutions & Quantitative Reasoning ¹		
UNIV 101	Foundational Skills	1
	Math Elective MATH 114 or higher	4
	Technology Competency ²	0-3
Critical Thinking ¹		
RLGN 105	Introduction to Biblical Worldview ³	2
	Critical Thinking Elective	3
Civic & Global Engagement ¹		
EVAN 101	Evangelism and the Christian Life ³	2
	Cultural Studies Elective	3
Social & Scientific Inquiry ¹		
	Natural Science Elective	4
	Social Science Elective	3
Christianity & Contexts ¹		
BIBL 105	Old Testament Survey	2
BIBL 110	New Testament Survey	2
THEO 201	Theology Survey I ³	2
THEO 202	Theology Survey II ³	2
Total Hours		42-45

¹ Refer to the list of approved general education electives before enrolling in foundational skill requirements

² All students must pass the Computer Assessment OR complete applicable INFT course

³ Students transferring in 45 or more UG credit hours will have the requirements of RLGN 105 & EVAN 101 waived; Students transferring in 60 or more UG credit hours will also have the requirements of THEO 201 & THEO 202 waived

Major Requirements

Code	Title	Hours
Major Foundational Courses		
ENGR 270	Technical Communication ^{1,2}	3
MATH 131	Calculus and Analytic Geometry I ^{1,2}	4
MATH 132	Calculus and Analytic Geometry II ^{1,2}	4

Code	Title	Hours
PHYS 231	University Physics I ^{1,2,3}	4
Total Hours		15

¹ Course may also fulfill select general education requirements.

² Minimum grade of "C" is required.

³ Lab science courses require a lab.

Code	Title	Hours
Major Courses		
CHEM 121	General Chemistry I ^{1,2}	4
CHEM 301	Organic Chemistry I ¹	4
CHEM 301L	Organic Chemistry I Lab ¹	0
CHEM 302	Organic Chemistry II ¹	4
CHEM 302L	Organic Chemistry II Lab ¹	0
ENGH 241	Material and Energy Balances ¹	3
ENGH 311	Separation Processes ¹	3
ENGH 351	Process Dynamics and Controls ¹	3
ENGH 376	ChE Thermal-Fluids Lab ¹	3
ENGH 386	Phase Equilibria ¹	3
ENGH 406	Chemical Reaction Engineering ¹	3
ENGH 416	Process Simulation ¹	3
ENGH 441	Transport Phenomena ¹	3
ENGH 481	Chemical Engineering Design I ¹	3
ENGH 482	Chemical Engineering Design II ¹	3
ENGI 220	Engineering Economy ¹	3
ENGR 110	Introduction to Engineering Fundamentals ¹	3
ENGR 235	Statics ¹	3
ENGR 315	Fluid Dynamics ¹	3
ENGR 320	Thermodynamics ¹	3
ENGR 360	Heat Transfer ¹	3
Technical Electives		
	Technical Electives ^{1,2,3,4}	3
	Technical Electives ^{1,2,3,4}	3
Quantitative Studies		
ENGR 210	Probability and Statistical Methods for Engineering	3
MATH 231	Calculus and Analytical Geometry III	4
MATH 234	Introductory Differential Equations	3
	or MATH 334 Differential Equations	
MATH 302	Introduction to Experimental Design in Statistics	3
	or MATH 221 Applied Linear Algebra	
	or MATH 321 Linear Algebra	
PHYS 232	University Physics II ²	4
Total Hours		83

¹ Minimum grade of "C" is required.

² Lab science courses require a lab.

³ Select from the list of Approved Engineering Technical Elective Courses.

⁴ ENGR 495 is strongly recommended.

All applicable prerequisites must be met

Graduation Requirements

- 129 Total hours
- 2.0 Overall grade point average
- 32.25 Hours must be upper-level courses (300-400 level)
- **Grade of 'C'** Minimum required for all courses in the major, quantitative studies, and technical electives
- 25% Of major, including technical electives and quantitative studies, taken through Liberty University
- 32.25 Hours must be completed through Liberty University
- **Grad App** Submission of Degree Completion Application must be completed within the last semester of a student's anticipated graduation date
- **CSER** All requirements must be satisfied before a degree will be awarded

Course Sequence

Freshman Year

First Semester	Hours
Math Elective ²	4
Technology Competency ¹	0-3
BIBL 105 Old Testament Survey	2
ENGL 101 Composition and Rhetoric	3
ENGR 110 Introduction to Engineering Fundamentals	3
RLGN 105 Introduction to Biblical Worldview	2
UNIV 101 Foundational Skills	1
CSER	0
Hours	15-18

Second Semester

Communications Elective ²	3
Natural Science Elective ²	4
BIBL 110 New Testament Survey	2
ENGI 220 Engineering Economy	3
MATH 132 Calculus and Analytic Geometry II	4
CSER	0
Hours	16

Sophomore Year

First Semester	Hours
CHEM 121 General Chemistry I	4
ENGR 235 Statics	3
MATH 231 Calculus and Analytical Geometry III	4
PHYS 232 University Physics II	4
THEO 201 Theology Survey I	2
CSER	0
Hours	17

Second Semester

CHEM 301 Organic Chemistry I	4
CHEM 301L Organic Chemistry I Lab	0
ENGH 241 Material and Energy Balances	3
ENGR 210 Probability and Statistical Methods for Engineering	3
ENGR 320 Thermodynamics	3
MATH 234 Introductory Differential Equations or MATH 334 or Differential Equations	3

THEO 202 Theology Survey II	2
CSER	
Hours	18

Junior Year

First Semester	Hours
Information Literacy Elective ²	3
CHEM 302 Organic Chemistry II	4
CHEM 302L Organic Chemistry II Lab	0
ENGH 386 Phase Equilibria	3
ENGR 315 Fluid Dynamics	3
MATH 302 Introduction to Experimental Design in or MATH 221 Statistics or MATH 321 or Applied Linear Algebra or Linear Algebra	3
CSER	0
Hours	16

Second Semester

Critical Thinking Elective ²	3
ENGH 311 Separation Processes	3
ENGH 351 Process Dynamics and Controls	3
ENGR 360 Heat Transfer	3
Technical Elective ³	3
CSER	0
Hours	15

Senior Year

First Semester	Hours
Cultural Studies Elective ²	3
ENGH 376 ChE Thermal-Fluids Lab	3
ENGH 406 Chemical Reaction Engineering	3
ENGH 416 Process Simulation	3
ENGH 481 Chemical Engineering Design I	3
EVAN 101 Evangelism and the Christian Life	2
CSER	0
Hours	17

Second Semester

Information Literacy Elective ²	3
Social Science Elective ²	3
ENGH 441 Transport Phenomena	3
ENGH 482 Chemical Engineering Design II	3
Technical Elective ^{3,4}	3
CSER	0
Hours	15
Total Hours	129-132

¹ All students must pass the Computer Assessment OR complete applicable INFT course; refer to www.liberty.edu/computerassessment for more information.

² Refer to the list of approved general education electives here before enrolling in foundational skills requirement.

³ Select from the list of approved Engineering Technical Elective Courses.

⁴ ENGR 495 is strongly recommended.

All applicable prerequisites must be met