

INDUSTRIAL & SYSTEMS ENGINEERING (B.S.) - RESIDENT

Important: This degree plan is effective for those starting this degree program in fall 2025 through summer 2026. 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		
CSCN 111	Programming In C++ Beginner ^{1,2}	3
ENGR 270	Technical Communication ^{1,2}	3

Code	Title	Hours
MATH 131	Calculus and Analytic Geometry I ^{1,2}	4
MATH 132	Calculus and Analytic Geometry II ^{1,2}	4
PHYS 231	University Physics I ^{1,2,3}	4
Total Hours		18

¹ Course may fulfill select general education requirements.

² Minimum grade of "C" required

³ Lab science courses require a lab.

Code	Title	Hours
Major Courses		
ENGI 220	Engineering Economy ¹	3
ENGI 230	Production Systems ¹	3
ENGI 300	Enterprise Forecasting	3
ENGI 305	Data Analysis Methods and Modeling	3
ENGI 330	Facilities Design	3
ENGI 340	Introduction to Operations Research: Deterministic Models	3
ENGI 350	Introduction to Operations Research: Probabilistic Models	3
ENGI 360	Engineering Information Systems	3
ENGI 383	Project Management and Systems Engineering	3
ENGI 420	Advanced Data Analysis and Machine Learning	3
ENGI 430	Decision Analysis	3
ENGI 450	Human Factors and Ergonomics	3
ENGI 460	Digital Simulation	3
ENGR 110	Introduction to Engineering Fundamentals ¹	3
ENGR 370	Quality Assurance	3
ENGR 481	Engineering Design I	3
ENGR 482	Engineering Design II	3
Technical Electives		
	Technical Elective ^{1,2,3,4}	3
	Technical Elective ^{1,2,3,4}	3
	Technical Elective ^{1,2,3,4}	3
Quantitative Studies		
ENGR 210	Probability and Statistical Methods for Engineering ¹	3
MATH 221	Applied Linear Algebra ¹	3
MATH 231	Calculus and Analytical Geometry III ¹	4
MATH 250	Introduction to Discrete Mathematics ¹	3
MATH 302	Introduction to Experimental Design in Statistics ¹	3
PHYS 232	University Physics II ^{1,2}	4
Total Hours		80

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

- **126** Total hours
- **2.0** Overall grade point average
- **31.5** Hours must be upper-level courses (300-400 level)
- **Grade of 'C'** Minimum required for all upper-level courses in the major
- **25%** Of major, including technical electives and quantitative studies, taken through Liberty University
- **31.5** 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

Course	Title	Hours
Freshman Year		
First Semester		
ENGL 101	Composition and Rhetoric	3
MATH 131	Calculus and Analytic Geometry I ¹	4
RLGN 105	Introduction to Biblical Worldview	2
UNIV 101	Foundational Skills	1
Technology Competency ²		0-3
ENGR 102	Introduction to Engineering	1
ENGR 110	Introduction to Engineering Fundamentals	3
ENGR 133	Calculus with MATLAB	1
CSER		0
Hours		15-18
Second Semester		
BIBL 105	Old Testament Survey	2
INQR 101	Inquiry	1
Communications Elective ^{ENGR 270 3}		3
Mathematics Elective ^{MATH 132 1,3}		4
Natural Science Elective ^{PHYS 231 1,3}		4
ENGI 220	Engineering Economy	3
CSER		0
Hours		17
Sophomore Year		
First Semester		
EVAN 101	Evangelism and the Christian Life	2
RSCH 201	Research	3
Information Literacy Elective ³		3
CSIS 111	Introduction to Programming Using C++	3
MATH 231	Calculus and Analytical Geometry III	4
MATH 250	Introduction to Discrete Mathematics	3
CSER		0
Hours		18
Second Semester		
ENGI 230	Production Systems	3
ENGI 360	Engineering Information Systems	3
MATH 221	Applied Linear Algebra	3
MATH 334	Differential Equations	3
PHYS 232	University Physics II	4

Course	Title	Hours
CSER		0
Hours		16
Junior Year		
First Semester		
BIBL 110	New Testament Survey	2
THEO 201	Theology Survey I	2
Cultural Studies Elective ³		3
ENGI 330	Facilities Design	3
ENGI 340	Introduction to Operations Research: Deterministic Models	3
ENGR 210	Probability and Statistical Methods for Engineering	3
CSER		0
Hours		16
Second Semester		
Critical Thinking Elective ³		3
Social Science Elective ³		3
ENGI 305	Data Analysis Methods and Modeling	3
ENGI 350	Introduction to Operations Research: Probabilistic Models	3
ENGR 370	Quality Assurance	3
Technical Elective ⁴		3
CSER		0
Hours		18
Senior Year		
First Semester		
THEO 202	Theology Survey II	2
ENGI 300	Enterprise Forecasting	3
ENGI 420	Advanced Data Analysis and Machine Learning	3
ENGI 430	Decision Analysis	3
ENGR 481	Engineering Design I	3
Technical Elective ⁴		3
CSER		0
Hours		17
Second Semester		
Information Literacy Elective ³		3
ENGI 450	Human Factors and Ergonomics	3
ENGI 460	Digital Simulation	3
ENGR 482	Engineering Design II	3
Technical Elective ⁴		3
Technical Elective ^{4,5}		3
CSER		0
Hours		18
Total Hours		135-138

¹ Minimum grade of "C" is required

² All students must pass the Computer Assessment OR complete applicable INFT course; refer to www.liberty.edu/computerassessment for more information

³ Refer to the list of approved general education electives here before enrolling in foundational skills requirements

⁴ Select from the list of Approved Engineering Technical Elective Courses

⁵ ENGR 495 Directed Research is strongly recommended