

Bachelor of Science in Mechanical Engineering

2022-2023 Degree Completion Plan

This degree plan is effective for those starting this degree program in fall 2022 through summer 2023. This degree plan will remain in Important: effect for students who do not break enrollment or who do not change degree programs, concentrations or cognates.

GENERAL EDUCATION/

Course	ONAL SKILLS REQUIREMENTS	Hrs Sem Grade	Course		Hrs	Sem	Grad
Communica	tion & Information Literacy (13 hou	rs) ¹	Major Foun	dational Courses (4-15 hours)			
ENGL 101	Composition & Rhetoric	3	ENGR 270	Technical Communication ⁴	3		
INQR 101	Inquiry 101	1	MATH 131	Calculus & Analytical Geometry I ^{4,5}	4		
	Communications Elective	3	MATH 132	Calculus & Analytical Geometry II ^{4,5}	4		
	Information Literacy Elective	3	PHYS 231	University Physics I4,5	4		
	Information Literacy Elective	3					
			MAJOR				
Fechnologic	al Solutions & Quantitative Reasoni	ng (5-8 hours) ¹		Core (64 hours)			
JNIV 101	Foundational Skills	1	CHEM 121	General Chemistry I	4		
MATH	Math Elective (MATH 114 or higher)	4	ENGI 220	Engineering Economy	3		
	Technology Competency ²	0-3	ENGM 310	Materials Engineering	3		
			ENGM 350	Computer-Aided Engineering	3		
Critical Thi	nking (8 hours) ¹		ENGM 375	Thermal-Fluids Design Lab	2		
RLGN 105	Intr Bwvw/Contemp Moral Issues ³	2	ENGM 415	Design of Machine Components	3		
RSCH 201	Research 201	3	ENGM 445	Materials & Manufacturing Processing	4		
	Critical Thinking Elective	3	ENGR 102	Introduction to Engineering	1		
			ENGR 110	Introduction to Engineering Fundamentals	s 3		
Civic & Glo	bal Engagement (5 hours) ¹		ENGR 125	Visualization for Engineers	1		
EVAN 101	Evangelism & Christian Life ³	2	ENGR 235	Statics	3		
	Cultural Studies Elective	3	ENGR 240	Dynamics	3		
			ENGR 313	Mechatronics	4		
Social & Scientific Inquiry (7 hours) ¹			ENGR 315	Fluid Dynamics	3		
	Natural Science Elective	4	ENGR 330	Mechanics of Materials	3		
	Social Science Elective	3	ENGR 360	Heat Transfer	3		
			ENGR 381	Engineering Design Introduction	3		
Christianity & Contexts (8 hours) ¹			ENGR 385	Thermodynamics II	3		
BIBL 105	Old Testament Survey	2	ENGR 405	Dynamic Systems Modeling	3		
BIBL 110	New Testament Survey	2	ENGR 481	Engineering Design I	3		
THEO 201	Theology Survey I ³	2	ENGR 482	Engineering Design II	3		
THEO 202	Theology Survey II ³	2	PHYS 320	Thermodynamics	3		
				<u>Technical Electives</u> (6 hours) ^{6,7}			
					_		
					-		
				Quantitative Studies (15 hours)			
			ENGR 133	Calculus with MATLAB	1		
			ENGR 210	Prob. & Statistical Methods for Engr.	3		
			MATH 231	Calculus & Analytical Geometry III	4		
			MATH 334	Differential Equations	3		
			PHYS 232	University Physics II	4		

Graduation Requirements

135 Total Hours

2.0 Overall grade point average

33.75 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

33.75 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

All applicable prerequisites must be met

Refer to the list of approved general education electives at www.liberty.edu/gened before enrolling in foundational skills requirements

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

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

⁴Courses may also fulfill select General Education Requirements. Please refer to the list of approved general education electives at www.liberty.edu/gened

Minimum grade of "C" is required

Select from the list of Approved Engineering Technical Elective Courses

ENGR 495 (Directed Research) is strongly recommended

Sug gested Course Sequence on second page

SUGGESTED COURSE SEQUENCE

FRESHMAN YEAR

BIGL 101 3	First Semester		Second Semester										
Communications Elective3 ENGR 270 3 UNIV 101	ENGL 101		3			2							
Nathenatics Elective³ [MATH 132¹] 4 Technology Competency² 0-3 Natural Science Elective³ [PHYS 231¹] 4 ENGR 102 1 ENGI 220 0 ENGR 133 1 SER 10 17 CSER 0 Total 15-18	MATH 131 ¹		4										
Technology Competency	RLGN 105		2										
ENGR 102			1			4							
Name	Technology Competency ²		0-3	_		4							
Total 17	ENGR 102			ENGI 220		3							
SOPHOMORE YEAR	ENGR 110		3	CSER		0							
SOPHOMORE YEAR SOPHOMORE YEAR				T	'otal	17							
SOPHOMORE YEAR SIBL 110	CSER		_										
BIBL 110 2		Total	15-18										
CHEM 121 4 ENGM 310 3 ENGR 125 1 ENGR 210 3 ENGR 235 3 ENGR 240 3 MATH 2311 4 MATH 334 3 PHYS 232 4 PHYS 320 3 CSER 0 CSER 0 Total 18 Total 18 Total 18 THEO 201 2 THEO 202 2 Information Literacy Elective³ 3 Critical Thinking Elective³ 3 ENGR 315 3 ENGM 350 3 ENGR 360 3 ENGM 375 2 ENGR 385 3 ENGR 330 3 Technical Elective⁴ 3 ENGR 381 3 CSER 0 CSER <td< td=""><td></td><td>SOP</td><td>HOMOR</td><td>E YEAR</td><td></td><td></td></td<>		SOP	HOMOR	E YEAR									
ENGR 125	BIBL 110		2	RSCH 201		3							
ENGR 235 3 ENGR 240 3 MATH 231¹ 4 MATH 334 3 PHYS 232 4 PHYS 320 3 CSER 0 CSER 0 JUNIOR YEAR THEO 201 2 THEO 202 2 Information Literacy Elective³ 3 Critical Thinking Elective³ 3 ENGR 315 3 ENGM 350 3 ENGR 360 3 ENGM 375 2 ENGR 385 3 ENGR 330 3 Technical Elective⁴ 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 Total 17 Total 16 EVAN 101 2 Information Literacy Elective³ 3 CUltural Studies Elective³ 3 Social Science Elective³ 3 EVAN 101 2 Information Literacy Elective³ 3 ENGR 415 3 ENGR 313 4 ENGR 405<	CHEM 121		4	ENGM 310		3							
MATH 231¹ 4 MATH 334 3 PHYS 232 4 PHYS 320 3 CSER 0 Total 18 Total 18 TOTAL 18 TOTAL 18 THEO 201 LINFOR YEAR THEO 202 2 Information Literacy Elective³ 3 ENGM 350 3 ENGR 315 3 ENGM 350 3 3 ENGR 360 3 ENGM 350 3 3 ENGR 385 3 ENGR 330 3 3 Technical Elective⁴ 3 ENGR 381 3 3 CSER 0 0 Total 17 Total 16 Total 17 Total 16 EVAN 101 2 Information Literacy Elective³ 3 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 3 ENGM 415 3 ENGR 313	ENGR 125		1	ENGR 210		3							
PHYS 232 4 PHYS 320 3 CSER 0 Total 18 JUNIOR YEAR THEO 201 2 THEO 202 2 Information Literacy Elective³ 3 Critical Thinking Elective³ 3 ENGR 315 3 ENGM 350 3 ENGR 360 3 ENGM 375 2 ENGR 385 3 ENGR 330 3 Technical Elective⁴ 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 Total 17 Total 16 EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0	ENGR 235		3	ENGR 240		3							
CSER 0 CSER 0 Total 18 Total 18 THEO 201 LINFOR YEAR THEO 202 2 Information Literacy Elective³ 3 Critical Thinking Elective³ 3 ENGR 315 3 ENGM 350 3 ENGR 360 3 ENGR 330 3 Technical Elective⁴ 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 Total 17 EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGR 405 3 ENGR 313 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴, 5 3 CSER 0 CSER 0 0 Total 17 Total 17	MATH 231 ¹		4	MATH 334		3							
Total 18	PHYS 232		4	PHYS 320		3							
JUNIOR YEAR THEO 201 2 THEO 202 2 Information Literacy Elective³ 3 Critical Thinking Elective³ 3 ENGR 315 3 ENGM 350 3 ENGR 360 3 ENGM 375 2 ENGR 385 3 ENGR 330 3 Technical Elective⁴ 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0 CSER 0 Total 17	CSER		0	CSER		0							
THEO 201 Information Literacy Elective ³ 3		Total	18	T	otal	18							
Information Literacy Elective ³ 3	JUNIOR YEAR												
ENGR 315 3 ENGM 350 3 ENGR 360 3 ENGM 375 2 ENGR 385 3 ENGR 330 3 Technical Elective4 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective3 3 Cultural Studies Elective3 3 Social Science Elective3 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective4,5 3 CSER 0 CSER 0 Total 17	THEO 201		2	THEO 202		2							
ENGR 360 3 ENGM 375 2 ENGR 385 3 ENGR 330 3 Technical Elective4 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective3 3 Cultural Studies Elective3 3 Social Science Elective3 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective4,5 3 CSER 0 CSER 0 Total 17	Information Literacy Elective ³		3	Critical Thinking Elective ³		3							
ENGR 385 3 ENGR 330 3 Technical Elective4 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective3 3 Cultural Studies Elective3 3 Social Science Elective3 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective4,5 3 CSER 0 CSER 0 Total 17	ENGR 315			ENGM 350									
Technical Elective ⁴ 3 ENGR 381 3 CSER 0 CSER 0 Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective ³ 3 Cultural Studies Elective ³ 3 Social Science Elective ³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective ^{4,5} 3 CSER 0 CSER 0 CSER Total 17	ENGR 360			ENGM 375									
CSER 0 CSER 0 Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0 CSER 0 Total 17				ENGR 330									
Total 17 Total 16 SENIOR YEAR EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0 CSER 0 Total 17						3							
SENIOR YEAR EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0 CSER 0 Total 17	CSER		_			_							
EVAN 101 2 Information Literacy Elective³ 3 Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0 CSER 0 Total 17		Total	17	T	'otal	16							
Cultural Studies Elective³ 3 Social Science Elective³ 3 ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective⁴,5 3 CSER 0 CSER 0 Total 17	SENIOR YEAR												
ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective 4,5 3 CSER 0 CSER 0 Total 17	EVAN 101		2	Information Literacy Elective ³		3							
ENGM 415 3 ENGR 313 4 ENGR 405 3 ENGM 445 4 ENGR 481 3 ENGR 482 3 Technical Elective 4,5 3 CSER 0 CSER 0 Total 17	Cultural Studies Elective ³		3			3							
ENGR 481 3 ENGR 482 3 Technical Elective 4,5 3 CSER 0 CSER 0 Total 17			ENGR 313		4								
Technical Elective 4,5 3 CSER $\underline{0}$ Total 17	ENGR 405 3		3	ENGM 445		4							
CSER <u>0</u> Total 17			3	ENGR 482		3							
	Technical Elective ^{4, 5}		3	CSER		0							
Total 17	CSER		<u>0</u>	T	otal	17							
		Total	17										

Notes

Revised: 03.02.2022 Effective: Catalog Term 2022-40

¹Minimum grade of "C" is required

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

³Refer to the list of approved general education electives at www.liberty.edu/gened before enrolling in foundational skills requirements ⁴Select from the list of Approved Engineering Technical Elective Courses ⁵ENGR 495 (Directed Research) is strongly recommended