

Accelerated Bachelor's/Master's Program in Industrial Engineering

Degree Requirements

Students must meet the following criteria to qualify for a Bachelor of Science in Industrial Engineering degree:

- Complete a minimum of 129 credit hours
- Satisfy WVU's undergraduate degree requirements
- Satisfy Statler College's undergraduate degree requirements
- Complete all courses listed in the curriculum requirements with the required minimum grades
- Attain an overall grade point average of 2.00 or better
- Attain a WVU grade point average of 2.00 or better
- Attain a Statler grade point average of 2.00 or better
- A maximum of one math or science courses with a grade of D+, D, or D- may apply towards a Statler College degree
- Complete a survey regarding their academic and professional experiences at WVU, as well as post-graduation job placement or continuing education plans.

The Statler GPA is computed based on all work taken at WVU with a subject code within Statler College (BIOM, BMEG, CE, CHE, CPE, CS, CSEE, CYBE, EE, ENGR, ENVE, ETEC, IENG, IH&S, MAE, MINE, PDA, PNGE, SAFM, SENG) excluding ENGR 140, ENGR 150, and CS 101. The WVU GPA is computed based on all work taken at WVU. The Overall GPA is computed based on all work taken at WVU and transfer work.

Students must meet the following criteria to qualify for a Master of Science in Industrial Engineering degree:

- Complete a minimum of 19 credit hours
- Satisfy WVU's graduate degree requirements
- Satisfy Statler College's graduate degree requirements (<http://catalog.wvu.edu/graduate/collegeofengineeringandmineralresources/#masterstext>)
- Complete all courses listed in the curriculum requirements with the required minimum grades
- Attain an grade point average of 3.0 or better
- Minimum of 60% of courses must be from 500 level or above
- Students admitted to this program must have their bachelor's and master's degree conferred simultaneously upon completion of all requirements for both degrees.

Curriculum Requirement

Code	Title	Hours
	University Requirements	16
	Fundamentals of Engineering Requirements	5
	Math and Science Requirements	28
	Industrial Engineering BS Program Requirements	80
	Industrial Engineering MS Program Requirements	19
Total Hours		148

University Requirements

Code	Title	Hours
	General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits)	
	Outstanding GEF Requirements 1, 5, 6, and 7	15
ENGR 191	First-Year Seminar	1
Total Hours		16

Fundamentals of Engineering Requirements

Code	Title	Hours
A minimum grade of C- is required in all Fundamentals of Engineering courses.		
ENGR 101	Engineering Problem Solving 1	2

Engineering Problem Solving (Select one of the following):	3
CHE 102	Introduction to Chemical Engineering
ENGR 102	Engineering Problem-Solving 2
ENGR 103	Introduction to Nanotechnology Design
MAE 102	Introduction to Mechanical and Aerospace Engineering Design
Total Hours	5

Math and Science Requirements

Code	Title	Hours
A minimum grade of C- is required in all Math and Science courses.		
CHEM 115 & 115L	Fundamentals of Chemistry 1 and Fundamentals of Chemistry 1 Laboratory (GEF 2B)	4
Calculus I (GEF 3):		4
MATH 155	Calculus 1	
MATH 153 & MATH 154	Calculus 1a with Precalculus and Calculus 1b with Precalculus	
MATH 156	Calculus 2 (GEF 8)	4
MATH 251	Multivariable Calculus	4
MATH 261	Elementary Differential Equations	4
PHYS 111 & 111L	General Physics 1 and General Physics 1 Laboratory	4
Required Science Elective (Select one of the following) (GEF 8):		4
BIOL 115 & 115L	Principles of Biology and Principles of Biology Laboratory	
CHEM 116 & 116L	Fundamentals of Chemistry 2 and Fundamentals of Chemistry 2 Laboratory	
PHYS 112 & 112L	General Physics 2 and General Physics 2 Laboratory	
Total Hours		28

Industrial Engineering BS Program Requirements

Code	Title	Hours
ECON 201	Principles of Microeconomics	3
ECON 202	Principles of Macroeconomics	3
EE 221 & 221L	Introduction to Electrical Engineering and Introduction to Electrical Engineering Laboratory	4
MAE 241	Statics	3
MAE Elective (Select one of the following):		3
MAE 242	Dynamics	
MAE 243	Mechanics of Materials	
MAE 320	Thermodynamics	
MAE 331	Fluid Mechanics	
IENG 200	Fundamentals of Industrial Engineering	1
IENG 213	Engineering Statistics	3
IENG 220 & 220L	Re-Engineering Management Systems and Re-Engineering Management Systems Laboratory	3
IENG 301	Materials and Costing	3
IENG 302 & 302L	Manufacturing Processes and Manufacturing Processes Laboratory	3
IENG 305	Introduction to Systems Engineering	3
IENG 314	Advanced Analysis of Engineering Data	3
IENG 316	Industrial Quality Control	3
IENG 331	Computer Applications in Industrial Engineering	3

IENG 343	Production Planning and Control	3
IENG 350	Introduction to Operations Research	3
IENG 360	Human Factors Engineering	3
IENG 377	Engineering Economy	3
IENG 445	Project Management for Engineers	3
IENG 446	Plant Layout/Material Handling	3
IENG 455	Simulation by Digital Methods *	3
IENG 471	Design of Productive Systems 1	3
IENG 472	Design of Productive Systems 2	3
Technical Elective (Choose one of the following):		3
CE 347 & 347L	Introduction to Environmental Engineering and Introduction to Environmental Engineering Laboratory	
CE 414	Construction Engineering	
CS 430	Advanced Software Engineering	
CS 440	Database Design and Theory	
BIOM 425	Bioengineering	
GEOG 350 & 350L	Geospatial Problem Solving and Geospatial Problem Solving Lab	
IENG 400 level course		
MAE 242	Dynamics	
MAE 320	Thermodynamics	
MAE 331	Fluid Mechanics	
MAE 427	Heating, Ventilating, and Air Conditioning	
MATH 343	Introduction to Linear Algebra	
MATH 420	Numerical Analysis 1	
MATH 441	Applied Linear Algebra	
SAFM 470	Managing Construction Safety	
STAT 421	Statistical Analysis System (SAS)	
Electives *		9
These elective courses will be shared between the B.S.I.E. and M.S.I.E.		
See MS Elective Course list in M.S.I.E. Requirements		
At least one course must be at the 500 level but more are encouraged		
Total Hours		80

Industrial Engineering MS Program Requirements

Code	Title	Hours
IENG 796	Graduate Seminar	1
Plan of Study		
Foundation Courses (Select three from the following):		9
IENG 503	Additive Manufacturing Technology and Materials	
IENG 514	Design of Industrial Experiments	
IENG 542	Advanced Production Control	
IENG 551	Quality and Reliability Engineering	
IENG 553	Applied Linear Programming	
IENG 554	Applied Integer/Heuristic Programs	
IENG 564	Industrial Ergonomics	
IENG 577	Advanced Engineering Economy	
IENG 660	Human Factors System Design	
IH&S 460	Ergonomics	
MS Elective Courses (Select three from the following):		9
IENG 505	Computer Integrated Manufacturing	
IENG 506	Computer Aided Process Planning	

IENG 507	Robotics and Flexible Automation
IENG 556	Supply Chain Management
IENG 551	Quality and Reliability Engineering
IENG 754	Inventory Theory
IENG 756	Applied Stochastic Processes
Any additional Foundation Course not used to fulfill the Foundation Course requirement.	
Any BIOM, BMEG, CE, CHE, CHEM, CPE, CS, EE, EMGT, IENG, IH&S, MAE, MATH, MINE, PNGE, PHYS, SAFM, SENG, or STAT courses 400-795 as approved by the student's AEC	
Total Hours	19

Suggested Plan of Study

It is important for students to take courses in the order specified as much as possible; all prerequisites and concurrent requirements must be observed. A typical ABM B.S.I.E. & M.S.I.E degree program that completes degree requirements in five years is as follows.

First Year

Fall	Hours	Spring	Hours
MATH 155 (GEF 3)		4 MATH 156	4
ENGR 101		2 ENGR 102	3
ENGR 191		1 PHYS 111 & 111L	4
CHEM 115 & 115L (GEF 2B)		4 GEF 6	3
ENGL 101 (GEF 1)		3 GEF 7	3
GEF 5		3	
		17	17

Second Year

Fall	Hours	Spring	Hours
MATH 251		4 MATH 261	4
MAE 241		3 IENG 213	3
ENGL 102 (GEF 1)		3 IENG 377	3
IENG 200		1 EE 221	3
IENG 220 & 220L		3 EE 221L	1
Required Science Elective		4 ECON 201	3
BIOL 115 & 115L			
CHEM 116 & 116L			
PHYS 112 & 112L			
		18	17

Third Year

Fall	Hours	Spring	Hours
IENG 301		3 ECON 202	3
IENG 305		3 IENG 302	2
IENG 314		3 IENG 302L	1
IENG 350		3 IENG 316	3
IENG 360		3 IENG 331	3
		IENG 343	3
		15	15

Fourth Year

Fall	Hours	Spring	Hours
IENG 445		3 IENG 446	3

IENG 455*	3	IENG 472	3
IENG 471	3	3 Elective Course*	3
Technical Elective	3	3 Elective Course*	3
Elective Course*	3	3 MAE Elective	3
		15	15

Fifth Year

Fall	Hours	Spring	Hours
Foundation Course		3 Foundation Course	3
Foundation Course		3 MS Elective Course	3
MS Elective Course		3 MS Elective Course	3
		IENG 796	1
		9	10

Total credit hours: 148

*
Indicates that this course will be shared with the MS requirements