

B.S. IN INDUSTRIAL ENGINEERING

BSIE Curriculum Requirements

Code	Title	Credit Hours
Core Requirement Courses		
EGN 114	Global Challenges Addressed by Engineering and Technology (NEW COURSE: Global Challenges in Engineering)	3
EGN 123	Computing and Digital Solutions for the future (NEW COURSE: Digital Solutions for the Future)	3
ISE 201	Work Design Systems	3
ISE 224	Python for Engineers	3
ISE 312	Foundations of Data Analysis	3
ISE 351	Safety and Ethics in Engineering	3
ISE 363	Project Management for Engineers	3
ISE 380	Engineering Economic Analysis	3
ISE 406	Computer-Aided Manufacturing	3
ISE 441	Deterministic Models in Operations Research	3
ISE 442	Stochastic Models in Operations Research	3
ISE 465	Inventory and Supply Chain Management	3
ISE 494	Senior Design Project	3
ISE 512	Quality Management Systems	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
ISE 568	Facilities Planning and Logistics	3
ISE Elective Courses		6
Students must take at least 1 course in each group to satisfy ISE electives.		
Group 1		
ISE 570 Engineering Management		
ISE 571 Engineering Entrepreneurship		
ISE 572 Management of Technological Innovation		
Group 2		
ISE 505 Robotics		
ISE 507 Design of Manufacturing Systems		
ISE 513 Quality Management in Service Organizations		
ISE 548 Games and Decision Making		
Engineering and Technical Elective Courses		
Additional Engineering Credit Hours		3
Additional Technical Elective Credit Hours		3
Other Courses		
Math & Basic Sciences Credit Hours		
ISE 310	Introduction to Engineering Probability	3
CHM 151 or CHM 121	Chemistry for Engineers Principles of Chemistry	3
CHM 153 or CHM 113	Chemistry Laboratory for Engineers Chemistry Laboratory I	1
MTH 151	Calculus I for Engineers	5
MTH 162	Calculus II	4
MTH 210	Introduction to Linear Algebra	3
MTH 311	Introduction to Ordinary Differential Equations	3
PHY 221	University Physics I	3

PHY 222	University Physics II	3
PHY 223	University Physics III	3
PHY 224	University Physics II Lab	1
PHY 225	University Physics III Lab	1
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills:		
MTH 151	Calculus I for Engineers (fulfilled through the major)	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
Other Credit Hours		3
Total Credit Hours		129

BSIE Curriculum Requirements: Engineering Management Concentration

Code	Title	Credit Hours
Core Requirement Courses		
EGN 114	Global Challenges Addressed by Engineering and Technology (NEW COURSE: Global Challenges in Engineering)	3
EGN 123	Computing and Digital Solutions for the future (NEW COURSE: Digital Solutions for the Future)	3
ISE 201	Work Design Systems	3
ISE 224	Python for Engineers	3
ISE 312	Foundations of Data Analysis	3
ISE 351	Safety and Ethics in Engineering	3
ISE 363	Project Management for Engineers	3
ISE 380	Engineering Economic Analysis	3
ISE 406	Computer-Aided Manufacturing	3
ISE 441	Deterministic Models in Operations Research	3
ISE 442	Stochastic Models in Operations Research	3
ISE 465	Inventory and Supply Chain Management	3
ISE 494	Senior Design Project	3
ISE 512	Quality Management Systems	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
ISE 568	Facilities Planning and Logistics	3
Other ISE Courses		
ISE 570	Engineering Management	3
ISE 571	Engineering Entrepreneurship	3
ISE 572	Management of Technological Innovation	3
Other Courses		
Additional Engineering Credit Hours		3
Total Math & Basic Sciences Credit Hours		
ISE 310	Introduction to Engineering Probability	3
CHM 151 or CHM 121	Chemistry for Engineers Principles of Chemistry	3

CHM 153 or CHM 113	Chemistry Laboratory for Engineers Chemistry Laboratory I	1
MTH 151	Calculus I for Engineers	5
MTH 162	Calculus II	4
MTH 210	Introduction to Linear Algebra	3
MTH 311	Introduction to Ordinary Differential Equations	3
PHY 221	University Physics I	3
PHY 222	University Physics II	3
PHY 223	University Physics III	3
PHY 224	University Physics II Lab	1
PHY 225	University Physics III Lab	1
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills:		
MTH 151	Calculus I for Engineers (fulfilled through the major)	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
Other Credit Hours		6
Total Credit Hours		132

BSIE Curriculum Requirements: Manufacturing Concentration

Code	Title	Credit Hours
Core Requirement Courses		
EGN 114	Global Challenges Addressed by Engineering and Technology (NEW COURSE: Global Challenges in Engineering)	3
EGN 123	Computing and Digital Solutions for the future (NEW COURSE: Digital Solutions for the Future)	3
ISE 201	Work Design Systems	3
ISE 224	Python for Engineers	3
ISE 312	Foundations of Data Analysis	3
ISE 351	Safety and Ethics in Engineering	3
ISE 363	Project Management for Engineers	3
ISE 380	Engineering Economic Analysis	3
ISE 406	Computer-Aided Manufacturing	3
ISE 441	Deterministic Models in Operations Research	3
ISE 442	Stochastic Models in Operations Research	3
ISE 465	Inventory and Supply Chain Management	3
ISE 494	Senior Design Project	3
ISE 512	Quality Management Systems	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
ISE 568	Facilities Planning and Logistics	3
Other ISE Courses		
ISE 505	Robotics	3
ISE 507	Design of Manufacturing Systems	3

Other Courses		
MAE 301	Engineering Materials Science	3
MAE 505	Design for Manufacturability	3
Additional Engineering Credit Hours		3
Total Math & Basic Sciences Credit Hours		
ISE 310	Introduction to Engineering Probability	3
CHM 151 or CHM 121	Chemistry for Engineers Principles of Chemistry	3
CHM 153 or CHM 113	Chemistry Laboratory for Engineers Chemistry Laboratory I	1
MTH 151	Calculus I for Engineers	5
MTH 162	Calculus II	4
MTH 210	Introduction to Linear Algebra	3
MTH 311	Introduction to Ordinary Differential Equations	3
PHY 221	University Physics I	3
PHY 222	University Physics II	3
PHY 223	University Physics III	3
PHY 224	University Physics II Lab	1
PHY 225	University Physics III Lab	1
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills:		
MTH 151	Calculus I for Engineers (fulfilled through the major)	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
Other Credit Hours		3
Total Credit Hours		132

BSIE Curriculum Requirements: Pre-Medical Concentration

Code	Title	Credit Hours
Core Requirement Courses		
EGN 114	Global Challenges Addressed by Engineering and Technology (NEW COURSE: Global Challenges in Engineering)	3
EGN 123	Computing and Digital Solutions for the future (NEW COURSE: Digital Solutions for the Future)	3
ISE 201	Work Design Systems	3
ISE 224	Python for Engineers	3
ISE 312	Foundations of Data Analysis	3
ISE 351	Safety and Ethics in Engineering	3
ISE 363	Project Management for Engineers	3
ISE 380	Engineering Economic Analysis	3
ISE 406	Computer-Aided Manufacturing	3
ISE 441	Deterministic Models in Operations Research	3
ISE 442	Stochastic Models in Operations Research	3
ISE 465	Inventory and Supply Chain Management	3
ISE 494	Senior Design Project	3
ISE 512	Quality Management Systems	3

ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
ISE 568	Facilities Planning and Logistics	3
Other Courses		
Total Math & Basic Sciences Credit Hours		
ISE 310	Introduction to Engineering Probability	3
BIL 150	General Biology	4
BIL 151	General Biology Laboratory	1
BIL 160	Evolution and Biodiversity	4
BIL 161	Evolution and Biodiversity Laboratory	1
BMB 401	Biochemistry for the Biomedical Sciences	4
CHM 113	Chemistry Laboratory I	1
CHM 121	Principles of Chemistry	4
CHM 205	Chemical Dynamics Laboratory	1
CHM 206	Organic Reactions and Synthesis Laboratory	2
CHM 221	Introduction to Structure and Dynamics	4
CHM 222	Organic Reactions and Synthesis	4
MTH 151	Calculus I for Engineers	5
MTH 162	Calculus II	4
MTH 210	Introduction to Linear Algebra	3
MTH 311	Introduction to Ordinary Differential Equations	3
PHY 221	University Physics I	3
PHY 222	University Physics II	3
PHY 223	University Physics III	3
PHY 224	University Physics II Lab	1
PHY 225	University Physics III Lab	1
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills:		
MTH 151	Calculus I for Engineers (fulfilled through the major)	
Areas of Knowledge:		
Arts and Humanities Cognate		9
People and Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
Other Credit Hours		3
Total Credit Hours		143

BSIE Plan of Study

Freshman Year		Credit Hours
Fall		
EGN 114	Global Challenges Addressed by Engineering and Technology	3
WRS 105	First-Year Writing I	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3
Credit Hours		14
Spring		
EGN 123	Computing and Digital Solutions for the future	3
WRS 107	First-Year Writing II: STEM	3

MTH 162	Calculus II	4
ECO 211 or 212	Principles of Microeconomics or Principles of Macroeconomics	3
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
Credit Hours		17
Sophomore Year		
Fall		
AH Cognate (AH Elective) ¹		3
ISE 201	Work Design Systems	3
MTH 210	Introduction to Linear Algebra	3
PS Cognate (PS Elective) ¹		3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
Credit Hours		16
Spring		
AH Cognate (AH Elective) ¹		3
ISE 224	Python for Engineers	3
CAE 210, ECE 205, or MAE 303	Mechanics of Solids I or Principles of Electrical Engineering-I or Thermodynamics	3
CHM 151 or 121	Chemistry for Engineers or Principles of Chemistry	3
CHM 153 or 113	Chemistry Laboratory for Engineers or Chemistry Laboratory I	1
MTH 311	Introduction to Ordinary Differential Equations	3
Credit Hours		16
Junior Year		
Fall		
ISE 310	Introduction to Engineering Probability	3
ISE 351	Safety and Ethics in Engineering	3
ISE 380	Engineering Economic Analysis	3
ISE 441	Deterministic Models in Operations Research	3
AH Cognate (Advanced AH Elective) ¹		3
PS Cognate (Advanced PS Elective) ¹		3
Credit Hours		18
Spring		
ISE 312	Foundations of Data Analysis	3
ISE 363	Project Management for Engineers	3
ISE 406	Computer-Aided Manufacturing	3
ISE 442	Stochastic Models in Operations Research	3
Technical Elective ²		3
PS Cognate ¹		3
Credit Hours		18
Senior Year		
Fall		
ISE 465	Inventory and Supply Chain Management	3
ISE 512	Quality Management Systems	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
ISE Elective - Group 1 or 2 ³		3
Credit Hours		15

Spring		
ISE 494	Senior Design Project	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 568	Facilities Planning and Logistics	3
ISE Elective - Group 1 or 2 ³		3
Credit Hours		15
Total Credit Hours		129

¹ To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA) (or applicable cognates). Students take a minimum of 3 courses (9 credit hours) in HA cognate and 3 courses in PS Cognate (9 credit hours).

² The Technical Elective is selected from courses at the 300 level or above, offered by one of the following departments: MTH, BTE (except BTE 417), BME (except BME 320), CAE, ECO, EEN, ISE, MAE, ACC, FIN, MGT (Except MGT 303), MAS, MKT.

³ ISE Electives - Choose one course from each Group 1 - ISE 570, ISE 571, ISE 572. Group 2 - ISE 505, ISE 507, ISE 513, ISE 548

Note: Failure to follow the plan of study may result in a delay of your graduation.

BSIE Plan of Study: Engineering Management Concentration

Freshman Year		
Fall		Credit Hours
EGN 114	Global Challenges Addressed by Engineering and Technology	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3
WRS 105	First-Year Writing I	3
Credit Hours		14
Spring		
EGN 123	Computing and Digital Solutions for the future	3
ECO 211 or 212	Principles of Microeconomics or Principles of Macroeconomics	3
MTH 162	Calculus II	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
WRS 107	First-Year Writing II: STEM	3
Credit Hours		17
Sophomore Year		
Fall		
ISE 201	Work Design Systems	3
BSL 212 or BUS 202	Introduction to Business Law and Ethics or Introduction to the Legal Environment of Business	3
AH Cognate (AH Elective) ¹		3
MTH 210	Introduction to Linear Algebra	3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
Credit Hours		16
Spring		
AH Cognate (AH Elective) ¹		3
ISE 224	Python for Engineers	3
CHM 151 or 121	Chemistry for Engineers or Principles of Chemistry	3
CHM 153 or 113	Chemistry Laboratory for Engineers or Chemistry Laboratory I	1

CAE 210, ECE 205, or MAE 303	Mechanics of Solids I or Principles of Electrical Engineering-I or Thermodynamics	3
MTH 311	Introduction to Ordinary Differential Equations	3
Credit Hours		16
Junior Year		
Fall		
AH Cognate (Advanced AH Elective) ¹		3
ISE 310	Introduction to Engineering Probability	3
ISE 351	Safety and Ethics in Engineering	3
ISE 380	Engineering Economic Analysis	3
ISE 441	Deterministic Models in Operations Research	3
PS Cognate (PS Elective) ¹		3
Credit Hours		18
Spring		
PS Cognate (Advanced PS Elective) ¹		3
ISE 312	Foundations of Data Analysis	3
ISE 363	Project Management for Engineers	3
ISE 406	Computer-Aided Manufacturing	3
ISE 442	Stochastic Models in Operations Research	3
PS Cognate (Advance PS elective) ¹		3
Credit Hours		18
Senior Year		
Fall		
ISE 465	Inventory and Supply Chain Management	3
ISE 512	Quality Management Systems	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
ISE 571	Engineering Entrepreneurship	3
Credit Hours		15
Spring		
ISE 494	Senior Design Project	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 568	Facilities Planning and Logistics	3
ISE 570	Engineering Management	3
ISE 572	Management of Technological Innovation	3
Credit Hours		18
Total Credit Hours		132

¹ To be selected from lists approved People and Society (PS)/Arts and Humanities (AH) (or applicable cognates). Students take a minimum of 3 courses (9 credit hours) in AH cognate and 3 courses in PS cognate (9 credit hours).

Note: Failure to follow the plan of study may result in a delay in your graduation.

BSIE Plan of Study: Manufacturing Concentration

Freshman Year		Credit Hours
Fall		
EGN 114	Global Challenges Addressed by Engineering and Technology	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3

WRS 105	First-Year Writing I	3
Credit Hours		14
Spring		
EGN 123	Computing and Digital Solutions for the future	3
ECO 211 or 212	Principles of Microeconomics or Principles of Macroeconomics	3
MTH 162	Calculus II	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
WRS 107	First-Year Writing II: STEM	3
Credit Hours		17
Sophomore Year		
Fall		
AH Cognate (AH Elective) ¹		3
ISE 201	Work Design Systems	3
MTH 210	Introduction to Linear Algebra	3
PHY 223	University Physics III	3
PHY 225	University Physics III Lab	1
PS Cognate (PS Elective) ¹		3
Credit Hours		16
Spring		
CAE 210, ECE 205, or MAE 303	Mechanics of Solids I or Principles of Electrical Engineering-I or Thermodynamics	3
ISE 224	Python for Engineers	3
CHM 151 or 121	Chemistry for Engineers or Principles of Chemistry	3
CHM 153 or 113	Chemistry Laboratory for Engineers or Chemistry Laboratory I	1
MTH 311	Introduction to Ordinary Differential Equations	3
AH Cognate (AH Elective) ¹		3
Credit Hours		16
Junior Year		
Fall		
AH Cognate (Advanced AH Elective) ¹		3
ISE 310	Introduction to Engineering Probability	3
ISE 351	Safety and Ethics in Engineering	3
ISE 380	Engineering Economic Analysis	3
ISE 441	Deterministic Models in Operations Research	3
PS Cognate (Advanced PS Elective) ¹		3
Credit Hours		18
Spring		
ISE 312	Foundations of Data Analysis	3
ISE 363	Project Management for Engineers	3
ISE 406	Computer-Aided Manufacturing	3
ISE 442	Stochastic Models in Operations Research	3
MAE 301	Engineering Materials Science	3
PS Cognate (Advanced PS Elective)		3
Credit Hours		18
Senior Year		
Fall		
ISE 465	Inventory and Supply Chain Management	3
ISE 505	Robotics	3

ISE 512	Quality Management Systems	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
MAE 505	Design for Manufacturability	3
Credit Hours		18
Spring		
ISE 494	Senior Design Project	3
ISE 507	Design of Manufacturing Systems	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 568	Facilities Planning and Logistics	3
Credit Hours		15
Total Credit Hours		132

¹ To be selected from lists approved People and Society (PS)/Arts and Humanities (AH) (or applicable cognates). Students take a minimum of 3 courses (9 credit hours) in AH cognate and 3 courses in PS cognate (9 credit hours).

Note: Failure to follow the plan of study may result in a delay in your graduation.

BSIE Plan of Study: Pre-Medical Concentration

Freshman Year		
Fall		Credit Hours
EGN 114	Global Challenges Addressed by Engineering and Technology	3
WRS 105	First-Year Writing I	3
MTH 151	Calculus I for Engineers	5
PHY 221	University Physics I	3
ECO 211 or 212	Principles of Microeconomics or Principles of Macroeconomics	3
Credit Hours		17
Spring		
EGN 123	Computing and Digital Solutions for the future	3
WRS 107	First-Year Writing II: STEM	3
MTH 162	Calculus II	4
CHM 121	Principles of Chemistry	4
PHY 222	University Physics II	3
PHY 224	University Physics II Lab	1
Credit Hours		18
Sophomore Year		
Fall		
ISE 201	Work Design Systems	3
BIL 150	General Biology	4
CHM 221	Introduction to Structure and Dynamics	4
MTH 210	Introduction to Linear Algebra	3
PHY 223	University Physics III	3
CHM 113	Chemistry Laboratory I	1
Credit Hours		18
Spring		
BIL 151	General Biology Laboratory	1
BIL 160	Evolution and Biodiversity	4

BIL 161	Evolution and Biodiversity Laboratory	1
CHM 222	Organic Reactions and Synthesis ²	4
CHM 205	Chemical Dynamics Laboratory	1
MTH 311	Introduction to Ordinary Differential Equations	3
PHY 225	University Physics III Lab	1
PS Cognate (PS Elective) ¹		3
Credit Hours		18
Junior Year		
Fall		
BMB 401	Biochemistry for the Biomedical Sciences ²	4
CHM 206	Organic Reactions and Synthesis Laboratory	2
ISE 310	Introduction to Engineering Probability	3
ISE 351	Safety and Ethics in Engineering	3
ISE 380	Engineering Economic Analysis	3
ISE 441	Deterministic Models in Operations Research	3
Credit Hours		18
Spring		
ISE 224	Python for Engineers	3
ISE 312	Foundations of Data Analysis	3
ISE 363	Project Management for Engineers	3
ISE 442	Stochastic Models in Operations Research	3
AH Cognate (AH elective) ¹		3
AH Cognate (AH elective) ¹		3
Credit Hours		18
Senior Year		
Fall		
ISE 465	Inventory and Supply Chain Management	3
ISE 512	Quality Management Systems	3
ISE 547	Simulation Modeling and Systems Analysis	3
ISE 557	Ergonomics and Human Factors Engineering	3
AH Cognate (Advanced AH Elective) ¹		3
PS Cognate (PS Elective) ¹		3
Credit Hours		18
Spring		
ISE 406	Computer-Aided Manufacturing	3
ISE 494	Senior Design Project	3
ISE 516	Introduction to Applied Data Analytics	3
ISE 524	Decision Support Systems in Industrial Engineering	3
ISE 568	Facilities Planning and Logistics	3
PS Cognate (Advanced PS Elective) ¹		3
Credit Hours		18
Total Credit Hours		143

¹ To be selected from lists approved People and Society (PS)/Arts and Humanities (AH) (or applicable cognates). Students take a minimum of 3 courses (9 credit hours) in AH cognate and 3 courses in PS cognate (9 credit hours).

² Can be replaced with an Advanced Bioscience Elective to be chosen from BIL 250 (<https://bulletin.miami.edu/search/?P=BIL%20250>), BIL 255 (<https://bulletin.miami.edu/search/?P=BIL%20255>), BIL 268 (<https://bulletin.miami.edu/search/?P=BIL%20268>), MIC 301 (<https://bulletin.miami.edu/search/?P=MIC%20301>), CHM 202 (<https://bulletin.miami.edu/search/?P=CHM%20202>), CHM 222BMB 401 (<https://bulletin.miami.edu/search/?P=BMB%20401>) or BMB 402. **Students should verify admission requirements of their medical school of interest to verify Adv. Bioscience requirements, e.g. organic chemistry II, biochemistry, or both.**

Note: Failure to follow the plan of study may result in a delay in your graduation.

Mission

The Department of Industrial and Systems Engineering's mission is to provide contemporary and relevant industrial and systems engineering education and research; impart knowledge and skills necessary to design and to improve a variety of manufacturing and service processes; promote life-long learning; and contribute to emerging societal needs.

Goals

The major goal of the Industrial and Systems Engineering program at the University of Miami is to prepare graduates to contribute to the economy by virtue of employment in a variety of industries: manufacturing (heavy and light, traditional and high technology) and service (health care, retail, transportation, logistics, government, consulting, banking, and insurance). In striving to achieve this goal, the objective of the faculty is to provide all graduates with the mathematical, scientific, and design tools required to formulate problems accurately, generate alternative solutions, evaluate those alternatives, and present the best solutions to clients or decision makers in a fashion that facilitates decision-making processes. In addition, superior students are prepared for graduate studies and research. Within the first several years following graduation from the Industrial and Systems Engineering program, graduates are expected to be:

1. Working as professionals by adding value in any one of the following sectors:
 - Service
 - Government
 - Consulting
 - Retail
 - Manufacturing
2. Pursuing or holding a graduate degree and/or developing professionally through continuing education, licensure, certification and seminars in a new area or their chosen areas of expertise.

Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.