Industrial Engineering and Management

Department Information

- **Department Web Site:**
  www.ndsu.edu/ime/ (http://www.ndsu.edu/ime/)
- **Credential Offered:**
  B.S.I.E.Mgt.; Minor
- **Sample Program Guide:**
  catalog.ndsu.edu/programs-study/undergraduate/industrial-engineering-management/#planofstudytext (http://catalog.ndsu.edu/programs-study/undergraduate/industrial-engineering-management/#planofstudytext)

Major Requirements

Major: Industrial Engineering & Management

Degree Type: B.S.I.E.Mgt.
Minimum Degree Credits to Graduate: 130

University Degree Requirements

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specified by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 30 credits must be NDSU resident credits. Resident credits include credits registered and paid for at NDSU.
6. At least 36 credits presented for graduation must be in courses numbered 300 or higher.
7. Students presenting transfer credit must meet the NDSU residence credits and the minimum upper level credit. Of the 30 credits earned in residence, a minimum of 15 semester credits must be in courses numbered 300 or above, and 15 semester credits must be in the student's curricula for their declared major.

For complete information, please refer to the Degree and Graduation Requirements (http://catalog.ndsu.edu/academic-policies/undergraduate-policies/degree-and-graduation/) section of this Bulletin.

University General Education Requirements

A list of university approved general education courses and administrative policies are available here (http://catalog.ndsu.edu/academic-policies/undergraduate-policies/general-education/#genedcoursestext).

Code	Title	Credits
Category C: Communication		**12**
ENGL 110	College Composition I	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Upper Division Writing †		
Category R: Quantitative Reasoning †		**3**
Category S: Science and Technology †		**10**
Category A: Humanities and Fine Arts †		**6**
Category B: Social and Behavioral Sciences †		**6**
Category W: Wellness †		**2**
Category D: Cultural Diversity *†		
Category G: Global Perspectives *†		
Total Credits		**39**

*
Courses for category D & G are satisfied by completing D & G designated courses in another general education category.

†
General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

Major Requirements

Code	Title	Credits
Industrial Engineering & Management Core Requirements		
IME 111	Introduction to Industrial and Manufacturing Engineering	3
IME 311	Work/Station Design and Measurement	3
IME 330	Manufacturing Processes	3
IME 440	Engineering Economy	3
IME 450	Systems Engineering and Management	3
IME 456	Program and Project Management	3
IME 460	Evaluation of Engineering Data	3
IME 461	Quality Assurance and Control	3
IME 470	Operations Research I	3
IME 472	Simulation of Business and Industrial Systems	3
IME 480	Production and Inventory Control	3
IME 482	Automated Manufacturing Systems	3
IME 485	Industrial and Manufacturing Facility Design	3
IME 489	Industrial and Manufacturing Engineering Capstone	3
MATH 129	Basic Linear Algebra	3
MATH 165	Calculus I (May satisfy general education category R)	4
MATH 166	Calculus II	4
MATH 259	Multivariate Calculus	3
MATH 266	Introduction to Differential Equations	3
ME 212	Fundamentals of Visual Communication for Engineers	3
ME 221	Engineering Mechanics I	3
ME 222	Engineering Mechanics II	3
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory (May satisfy general education category S)	4
CHEM 122	General Chemistry II (May satisfy general education category S)	3
ENGL 321	Writing in the Technical Professions (May satisfy general education category C)	3
ENGR 327	Ethics, Engineering, and Technology	3
PHYS 252 & 252L	University Physics II and University Physics II Laboratory (May satisfy general education category S)	5
Industrial Engineering and Management Electives		
Computer Science Electives: Select one of the following:		3
CSCI 122	Visual BASIC	
CSCI 159	Computer Science Problem Solving	
CSCI 160	Computer Science I	
CSCI 227	Computing Fundamentals in Python I	
ECE 173	Introduction to Computing	
Programming Language: Any programming language course must be approved by your adviser.		
Engineering Science Electives: Select 12 credits from the following:		
CE 309	Fluid Mechanics	3
ME 223	Mechanics of Materials	3
ME 350	Thermodynamics and Heat Transfer	3
Select one of the following:		3-4
EE 206	Circuit Analysis I	
ECE 275	Digital Design	
ECE 301	Electrical Engineering I	
Technical Electives: Select 9 credits from the following:		9

IME 335	Welding Technology
IME 380	CAD/CAM for Manufacturing
IME 411	Human Factors Engineering
IME 427	Packaging for Electronics
IME 430	Process Engineering
IME 431	Production Engineering
IME 432	Composite Materials Manufacturing
IME 437	Methods for Precision Manufacturing
IME 433	Additive Manufacturing
IME 435	Plastics and Polymer Processing in Manufacturing
IME 451	Logistics Engineering and Management
IME 453	Hospital Management Engineering
IME 462	Total Quality In Industrial Management
IME 463	Reliability Engineering
IME 464	Reliability Analysis
IME 465	Introduction to Machine Learning
Only one of the following 5 courses may be counted as a technical elective.	
BUSN 340	International Business
BUSN 431	Business Law I-Contracts, Property and Torts
MGMT 320	Foundations of Management
MRKT 320	Foundations of Marketing
MIS 320	Management Information Systems
Total Credits	**110-111**

Degree Requirements and Notes

- Grades less than 'C' will not be accepted for required courses in CHEM, MATH, and PHYS.
- Students may request approval for other 300-400 level engineering or related courses to be approved as technical electives. To request approval, a student should submit a memo to the IME Department indicating the course of interest and why the course should be approved as a technical elective. This memo will be reviewed by the IME Department Chair for approval.
- 300-400 level BUSN courses require at least junior standing and a minimum 2.50 cumulative GPA.

Accelerated subplan:

Code	Title	Credits
ACCT 200 & ACCT 201	Elements of Accounting I and Elements of Accounting II	3 or 6
or ACCT 102	Fundamentals of Accounting	
ECON 201 & ECON 202	Principles of Microeconomics and Principles of Macroeconomics	3 or 6
or ECON 105	Elements of Economics	
FIN 320	Principles of Finance	3
IME 640	Engineering Economy (in place of IME 440; cannot take as 4 credits)	3
IME 656	Program and Project Management (in place of IME 456)	3
IME 670	Operations Research I (in place of IME 470)	3
IME 672	Simulation of Business and Industrial Systems (in place of IME 472)	3
IME 680	Production and Inventory Control (in place of IME 480)	3
MGMT 320	Foundations of Management (take as tech elective for IE&M major)	3
MRKT 320	Foundations of Marketing (take as tech elective for IE&M major)	3
STAT 330	Introductory Statistics (or IME 460)	3
Total Credits		**33-39**

Degree Requirements and notes

- To be eligible for the accelerated program, students must complete 60 credits and have a GPA of 3.0 or higher to apply to the graduate school.