

INDUSTRIAL AND SYSTEMS/ MANUFACTURING ENGINEERING

Students with an interest in both areas can pursue a dual BSE program in Industrial Systems and Manufacturing Engineering and thus can earn two BSE degrees at the same time:

- BSE degree in Industrial and Systems Engineering
- BSE degree in Manufacturing Engineering

The dual degree program requires specified coursework that equals a minimum of 143 total credits.

Dearborn Discovery Core

Please see the Dearborn Discovery Core (General Education) (<https://umdearborn.edu/faculty-staff/academic-program-and-course-development/dearborn-discovery-core-general-education/>) webpage or additional information.

Foundational Studies

Written and Oral Communication (GEWO) – 6 Credits

Upper-Level Writing Intensive (GEWI) – 3 Credits

Quantitative Thinking and Problem Solving (GEQT) – 3 Credits

Critical and Creative Thinking (GECC) – 3 Credits

Areas of Inquiry

Natural Science (GENS) – 7 Credits

- Lecture/Lab Science Course
- Additional Science Course

Social and Behavioral Analysis (GESB) – 9 Credits

Humanities and the Arts (GEHA) – 6 Credits

Intersections (GEIN) – 6 Credits

Capstone

Capstone (GECE) – 3 Credits

Major Requirements

A candidate for the dual Bachelor of Science in Engineering (B.S.E. in Industrial and Systems Engineering and B.S.E. in Manufacturing Engineering) is required to pursue scholastic quality and to complete satisfactorily the following program of study:

Basic PREP Requirements (55)

Code	Title	Credit Hours
COMP 270	Tech Writing for Engineers (Also fulfills 3 credits of DDC Written and Oral Communication)	3
ECON 201 or ECON 202	Prin: Macroeconomics (Also fulfills 3 credits of DDC Social and Behavioral Analysis) Prin: Microeconomics	3

Additional 3 credit course required in areas above (DDC) or in IMSE Electives, to reach 143 credits.

Intro to Engineering		5
ENGR 100	Introduction to Engineering and Engineering Design	3
ENGR 126	Engineering Computer Graphics	2
Mathematics & Science		32
MATH 115	Calculus I	4
MATH 116	Calculus II	4
MATH 215	Calculus III	4
MATH 228	Diff Eqns with Linear Algebra	4
CHEM 134 or CHEM 144	General Chemistry IA Gen Chemistry IB	4
CHEM 136 or CHEM 146 or BIOL 140	General Chemistry IIA General Chemistry IIB Intro Molec & Cellular Biology	4
PHYS 150	General Physics I	4
PHYS 151	General Physics II	4
Basic Requirements		18
ME 230	Thermodynamics	4
IMSE 255	Computer Programming for Eng	3
ENGR 250	Principles of Eng Materials	3
ME 260 or ME 265	Design Stress Analyses Applied Mechanics	4
ECE 305	Intro to Electrical Eng	4

Professional Requirements (65)

Code	Title	Credit Hours
Department Core		48-49
IMSE 3005	Intro to Operations Research	4
IMSE 317	Eng Probability and Statistics	3
IMSE 382	Manufacturing Processes	4
IMSE 421	Eng Economy and Dec Anlys	3
IMSE 440	Applied stat models in engin	3
IMSE 4425	Human Factors and Ergonomics	4
IMSE 4585	Simulation in Systems Design	4
IMSE 4675	Six Sigma & Stat Proc Improv	4
IMSE 4745	Facilities Design	4
IMSE 4795	Prod, Inven Control & Lean Mfg	4
IMSE 4825 or ME 442	Industrial Controls Control Syst Anly and Design	4
IMSE 4835	Comp.-Aided Prcs Design & Mfg	4
MFGE Elective		3-4
Choose one course from:		
IMSE 4815	Manufacturing Process II	4
IMSE 488	Metal Forming Processes	3
ME 484	Manufacturing Poly Comp Matl	3
ENGR 350	Nanoscience and Nanotechnology	4
Capstone		4
IMSE 4951	Design Project I	2
IMSE 4952	Design Project II	2
Tech & Professional Electives		12-13

IMSE 351	Data Struc & Algorithm Anlysis
IMSE 381	Industrial Robots
IMSE 453	Data Comm/Distributed Process
IMSE 456	Intro to Data Base Systems
IMSE 4545	Information Systems Design
IMSE 486	Design for Assembly & Mfg
ACC 298	Financial Accounting
ACC 299	Managerial Accounting
OB 354	Behavior in Organization
OB 401	Management Skills Development
OB 402	Organizational Change & Devlp
LE 452	The Legal Environment of Bus
ENT 400	Entrepreneurial Thinking&Behav
MKT 352	Mktg Principles and Policies
ENGR 360	Design Thinking : Process, Method & Practice
ENGR 399	Experiential Honors Prof. Prac
ENGR 492	Exper Honors Directed Research
ENGR 493	Exper Hnrs Dir Dsgn