

MANUFACTURING/ MECHANICAL ENGINEERING

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

- BSE degree in Manufacturing Engineering
- BSE degree in Mechanical 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/dearborn-discovery-core/>) webpage or additional information.

Foundational Studies

Writing and 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

In addition to completion of the Dearborn Discovery Core, the following courses are required to earn a dual BSE degree in Manufacturing and Mechanical Engineering from UM-Dearborn.

Prerequisite Courses

Code	Title	Credit Hours
COMP 270	Tech Writing for Engineers (Fulfills 3 credits of DDC Written and Oral Communication)	3
ECON 201 or ECON 202	Prin: Macroeconomics (Fulfills 3 credits of DDC Social and Behavioral Analysis) Prin: Microeconomics	3
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	General Chemistry IA	4
CHEM 136	General Chemistry IIA	4
PHYS 150	General Physics I	4
PHYS 151	General Physics II	4
ENGR 100	Introduction to Engineering and Engineering Design	3
ENGR 126	Engineering Computer Graphics	2
ENGR 216	Computer Meth for Engineers	2
ENGR 250	Principles of Eng Materials	3
ME 230	Thermodynamics	4
ME 260	Design Stress Analyses	4

Dual Major in MGME Courses

Code	Title	Credit Hours
ECE 305	Intro to Electrical Eng	4
ME 325	Thermal Fluid Sciences I	4
ME 345	Engineering Dynamics	4
ME 349	Instrument & Measuremt Systems	3
ME 3601	Design and Analysis of Machine Elements	4
ME 364	Prob, Stats, and Rel in Mach D	3
ME 375	Thermal Fluid Sciences II	4
ME 379	Thermal-Fluids Laboratory	3
ME 381 or IMSE 382	Manufacturing Processes I Manufacturing Processes	4
ME 442	Control Systems Analysis and Design	4
ME 4671	Senior Design I	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 4675	Six Sigma & Stat Proc Improv	4
IMSE 4795	Prod, Inven Control & Lean Mfg	4
IMSE 4835	Comp.-Aided Prcs Design & Mfg	4
IMSE 4953	Design Project in Mfge	1

Upper-Level ME Design Courses 3-4

One course (3-4 credit hours) from:		
BENG 370	Biomechanics I	4
BENG 450	Biophotonics and Optical Metrology	3
BENG 451	Microfluidics	3
BENG 481	Biomimetics	3
ENGR 360	Design Thinking : Process, Method & Practice	4
ENGR 493	Exper Hnrs Dir Dsgn	1
ME 4191	Structural Mech & Design	4
ME 4202	Design Turbo. and Wind Gen.	4
ME 423	Thermal Sys Des & Optimization	4
ME 4361	Design of HVAC Systems	4
ME 440	Intro to Mechanical Vibrations	3
ME 445	Sound and Noise Controls	4
ME 4461	Mech Vibration & Noise Control	4
ME 4500	Design of Automotive Chassis and Body Systems	3
ME 452	Sustainable Energy & Environment	4
ME 4471	Solar Energy Sys Analy&Design	4

2 Manufacturing/Mechanical Engineering

ME 460	Design for Manufacturing	3
ME 469	Senior Design II	1-4
ME 472	Prin & Appl of Mechatronic Sys	4
ME 483	Dsgn Cons in Poly and Comp Mat	3
ME 490	Directed Design Project	1-3
ME 493	Advanced Vehicle Energy Sys	3
MFGE Elective		3-4
One course (3-4 credit hours) from:		
ENGR 350	Nanoscience and Nanotechnology	4
IMSE 381	Industrial Robots	4
IMSE 488	Metal Forming Processes	3
ME 460	Design for Manufacturing	3
ME 4191	Structural Mech & Design	4
ME 4910	Degradation of Materials	3
ME 4950	Digital Manufacturing and Product Innovation	3
General Electives - as needed to reach the total 143 credits.		