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 (General Education)

All students must satisfy the University's Dearborn Discovery Core requirements (https://catalog.umd.umich.edu/undergraduate/gen_ed_ddc/), in addition to the requirements for the major

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	Prin: Macroeconomics (Fulfills 3 credits of DDC Social and Behavioral Analysis)	3
or ECON 202	Prin: Microeconomics	
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 134L	General Chemistry IA Laboratory	0
PHYS 150	General Physics I	3
PHYS 150L	General Physics I Lab/Dis	1
PHYS 151	General Physics II	3
PHYS 151L	General Physics II Lab/Dis	1
ENGR 100	Introduction to Engineering and Engineering Design	3
ENGR 100L	Introduction to Engineering and Engineering Design Lab	0
ENGR 126	Engineering Computer Graphics	2
ENGR 126L	Engin Computer Graphics Lab	0
ENGR 200	Modern Computer Programming for Engineers	4
ENGR 200L	Modern Computer Programming for Engineers Lab	0
ENGR 250	Principles of Engineering Materials	3
ENGR 250R	Prin of Eng Materials Rec	0
ME 230	Thermodynamics	4
ME 230R	Thermodynamics	0
ME 260	Design Stress Analyses	4
ME 260R	Design Stress Analysis	0

Dual Major in MGME Courses

Code	Title	Credit Hours
ECE 305	Intro to Electrical Eng	4
ECE 305L	Intro to Electrical Eng Lab	0
ME 320	Fluid Mechanics	4
ME 320L	Fluid Mechanics Lab	0
ME 345	Engineering Dynamics	4
ME 349	Instrument & Measuremt Systems	3
ME 349L	Instrument and Meas Sys Lab	0
ME 355	Modeling and Analysis of Dynamic Systems	4
ME 355L	Modeling and Analysis of Dynamic Systems Lab	0
ME 3601	Design and Analysis of Machine Elements	4
ME 364	Probability, Statistics, and Relativity in Machine Design	3
ME 371	Heat Transfer	4
ME 371L	Heat Transfer Lab	0
ME 381	Manufacturing Processes I	4
or IMSE 382	Manufacturing Processes	
ME 381L	Manufacturing Procceses I Lab	0
ME 442	Control Systems Analysis and Design	4
ME 442L	Contrl Sys Anlys and Desgn Lab	0
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 Desgn & 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 of Turbomachinery and Wind Generation	4
ME 423	Thermal Systems Design & 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 4471	Solar Energy Sys Analy&Design	4
ME 4500	Design of Automotive Chassis and Body Systems	3
ME 452	Sustainable Energy & Environment	4
ME 4550	Computational Uncertainty Quantification for Engineering Applications	3

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 Systems	3
MFGE Elective		**3-4**
One course (3-4 credit hours) from:		
ENGR 345	Effective Use of AI Tools for Scientists and Engineers	3
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.
ENGR 299 and ENGR 499 may be used in this area.