

Mechanical Engineering Major, B.S.M.E.

Department of Mechanical and Industrial Engineering

The Mechanical Engineering program integrates the sciences and advanced mathematics with engineering fundamentals so graduates can design, develop, and implement both thermal and mechanical systems. Mechanical engineers design products, energy systems, and new materials which are cost effective and useful. The BSME program totals 128 credits.

Typical Program of Study:

Fall Semester

First Year

Comp 1120 College Writing	3 cr
CS programming alternative ^a	3-5 cr
Math 1296 Calculus I*	5 cr
Literature/arts elective (Lib Ed category 9)	<u>3 cr</u>
	14-16 cr

Second Year

Engr 2015 Statics	3 cr
IE 2105 Intro to Material Science	3 cr
Math 3280 Diff Equations/Linear Algebra	4 cr
Phys 2012 General Physics II	4 cr
History/philosophy elective (Lib Ed category 7)	<u>3 cr</u>
	17 cr

Third Year

Comp 31xx Advanced Writing or Comp 5220 Document Design & Graphics or Comp 5230 Web Pages, Appl/Presentation	3 cr
Math 3298 Calculus III	4 cr
IE 3125 Engineering Economic Analysis	3 cr
IE 3135 Materials Processing	4 cr
ME 3111 Fluid Mechanics or ChE 3111 Fluid Mechanics	<u>3 cr</u>
	17 cr

Fourth Year

ME 4112 Heat and Mass Transfer or ChE 3112 Heat and Mass Transfer	3 cr
ME 4122 Heat, Thermodynamics & Fluids Lab	2 cr
EMgt 4110 Engr. Professionalism and Practice	2 cr
ME 4175 Machine Design	3 cr
Mechanical Engineering elective ^b	<u>3 cr</u>
	14 cr

Spring Semester

Chem 1151 General Chemistry I	5 cr
Math 1297 Calculus II	5 cr
IE 1225 Intro to Engineering Design, Mfg	4 cr
Phys 2011 General Physics I	<u>4 cr</u>
	18 cr
Econ 1023 Principles of Economics: Micro or Econ 1022 Principles of Economics: Macro	3 cr
Engr 2016 Mechanics of Materials	3 cr
Engr 2026 Dynamics	3 cr
ECE 2006 Electrical Circuit Analysis	4 cr
Stat 3611 Probability & Statistics	<u>4 cr</u>
	17 cr

IE 3255 Statistical Quality Control	3 cr
ME 3211 ME Thermodynamics	3 cr
ME 4145 CAD/CAM	4 cr
ME 4245 Machining and Machine Tools	4 cr
Literature/Arts elective (Lib Ed cat 9 or 10)	<u>3 cr</u>
	17 cr

ME 4255 Multidisciplinary Senior Design	4 cr
Mechanical Engineering elective ^b	3 cr
Control/Systems elective ^b	3 cr
Contemp Soc Issues elective (Lib Ed cat 8)	<u>3 cr</u>
	12 cr

*First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

^aCourse options include CS 1121 Intro. to Programming in Visual BASIC, CS 1131 Intro. to Programming in FORTRAN, CS 1211 Intro to Programming in C, CS 1511 Computer Science I, or CS 2121 Intro to Programming in Java.

^bSee IE/ME website for elective options

For further information: Department of Mechanical and Industrial Engineering

105 Voss-Kovach Hall
1305 Ordean Court
Duluth, MN 55812-2496
218-726-6161
Fax: 218-726-8596
ie@d.umn.edu
<http://ie.d.umn.edu>

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2003-2005 Catalog

Major Course Requirements	Credits	Prerequisites	Semester to be Completed	Grade when Completed
Year 1				
IE 1225 Intro to Engineering Design, Mfg	4	Math 1296		
Chem 1151 General Chemistry I	5	High school chemistry and algebra		
CS programming course	3 to 5	3.5 years high school math		
Math 1296 Calculus I	5	Math placement test		
Math 1297 Calculus II	5	Math 1296		
Phys 2011 General Physics I	4	Math 1296		
Comp 1120 College Writing	3			
Literature/arts elective (category 9)	3			
Year 2				
IE 2105 Introduction to Material Science	3	Chem 1151		
ECE 2006 Electrical Circuit Analysis	4	Phys 2011; conc reg in Math 3280, Phys 2012		
Econ 1023 Micro OR Econ 1022 Macro	3			
Engr 2015 Statics	3	Math 1297; Phys 2011		
Engr 2016 Mechanics of Materials	3	Engr 2015; Math 3280		
Engr 2026 Dynamics	3	Engr 2015; Math 3280		
Math 3280 Diff Equations w/Lin Algebra	4	Math 1297		
Phys 2012 General Physics II	4	Phys 2011; Math 1297		
Stat 3611 Probability and Statistics	4	Math 1296		
History/philosophy elective (category 7)	3			
Year 3*				
IE 3125 Engineering Economic Analysis	3	Stat 3611		
IE 3135 Materials Processing I	4	IE 2105; Stat 3611		
Math 3298 Calculus III	4	Math 1297		
ME/ChE 3111 Fluid Mechanics	3	Math 3280; Engr 2015		
ME 3211 ME Thermodynamics	3	Phys 2012; Engr 2026		
ME 4145 CAD/CAM	4			
ME 4245 Machining & Machine Tools	4	IE 1225; Engr 2016		
IE 3255 Statistical Quality Control	3	Stat 3611		
Literature/arts elective (category 9 or 10)	3			
Comp 31xx Advanced Writing	3	Comp 1120; 60 credits		
OR Comp 5220 Doc Design & Graphics	3	Comp 1120; 60 credits		
OR Comp 5230 Web Pages, Appl/Pres	3	60 credits		
Year 4*				
ME 4112 (or ChE 3112) Heat & Mass Tran	3	ME 3111, 3211; Math 3298)		
ME 4122 Heat, Thermo, Fluids Lab	2	Concurrent registration in ME 4112		
EMgt 4110 Engr. Prof. and Practice	2	No more than 2 semesters prior to graduation		
ME 4175 Machine Design	3			
ME 4255 Multidisciplinary Senior Design	4	EMgt 4110		
Mechanical Engineering Elective **	3			
Mechanical Engineering Elective **	3			
Control/Systems Elective***	3			
Contemp Soc Issues elective (category 8)	3			

*Admission to upper division program is competitive and based on performance in lower division courses (2.3 min. GPA).

Departmental Honors requires minimum 3.5 GPA, active participation in Tau Beta Pi and at least one professional society (ASME or IIE), and faculty nomination.

****6 credits of Mechanical Engineering electives are required. Choose from:**

ChE 2121 ChE Thermodynamics, ChE 4111 Separations (3), ChE 4301 Chemical Reaction Engineering (3), ChE 4401 Process Control (3), ChE 4613 Air Pollution Control (3), ChE 4621 Particle Technology (3), ChE 5021 Transport Phenomena (3), ChE 5895 Special Topics (1-4); ECE 2111 Linear Systems/Signal Analysis (4), ECE 2212 Electronics I (4), ECE 3151 Control Systems (3), ECE 3235 Electronics II (4), ECE 3445 Electromag Fields (3), ECE 3611 Solid State Semiconductors (3), ECE 4501 Power Systems (3), ECE 4801 Neural Networks (3), ECE 4831 Fuzzy Set Theory/Applications (3), ECE 4995 Special Topics (1-3); IE 3105 Human Factors (3), IE 3115 Operations Research (4), IE 3265 Prod/Operations Mgt (4), IE 4196 Coop Ed (2), IE 4235 Mfg Systems Integr (4), IE 4993 Seminar (1), IE 4995 Special Topics (1-4); ME 4135 Robotics and Control (4); MgtS 4472 Entrepreneurship (3); Phys 2001 Oscillations (2), Phys 2021 Relativity/Quantum Physics (4), Phys 2031 Quant Physics Lab (1), Phys 4001 Classical Mechanics (4), Phys 4021 Quant Physics II (4), Phys 4031 Thermal/Stat Physics (4).

*****3 credits of Control/Systems electives are required. Choose from:**

ChE 4401 Process Control (3), ECE 3151 Control Systems (3), IE 4235 Mfg Systems Integration (4), ME 4135 Robotics & Control (4).