

MAJOR: MECHANICAL ENGINEERING, B.S.

DEPARTMENT OF MECHANICAL & INDUSTRIAL ENGINEERING

The B.S.M.E. program integrates topics from chemistry, physics, advanced mathematics and statistics, and core engineering science to prepare graduates to work professionally in both thermal and mechanical systems, from design, development, manufacture, and use of products involving mechanical and thermal elements. The program emphasizes the production engineering approach to mechanical and thermal systems design and development. Mechanical engineering program educational objectives: B.S.M.E. graduates will 1. Solve mechanical engineering problems by applying contemporary engineering tools to propose and implement effective solutions. 2. Design, develop, implement and improve thermal and mechanical systems. 3. Contribute as informed, ethical, and responsible members of the engineering profession and society as a whole. 4. Continue lifelong professional development throughout their career. 5. Collaborate and communicate effectively with others as a member or leader of an engineering or multidisciplinary team in an international setting.

TYPICAL PROGRAM OF STUDY			
FIRST YEAR			
FALL SEMESTER		SPRING SEMESTER	
WRIT 1120 College Writing	3 cr	CHEM 1151 General Chemistry I	5 cr
CS programming course ¹	3-5	IE 1225 Intro to Design and Manufacturing Engineering ³	4 cr
MATH 1296 Calculus I [^]		MATH 1297 Calculus II	
or MATH 1596 Honors Calculus I	5 cr	or MATH 1597 Honors Calculus II	5 cr
Liberal education requirement ²	<u>3 cr</u>	PHYS 2011 General Physics I	<u>4 cr</u>
	Total: 14-16cr		Total: 18 cr
SECOND YEAR			
ENGR 2015 Statics	3 cr	ENGR 2016 Mechanics of Materials	3 cr
ENGR 2110 Intro to Material Science for Engineers	3 cr	ENGR 2026 Dynamics	3 cr
MATH 3280 Differential Equations w/Linear Algebra	4 cr	ECE 2006 Electrical Circuit Analysis	4 cr
PHYS 2012 General Physics II	4 cr	MATH 3298 Calculus III	4 cr
ECON 1022 Principles of Economics: Macro		STAT 3411 Engineering Statistics	<u>3 cr</u>
or ECON 1023 Principles of Economics: Micro	<u>3 cr</u>		Total: 17 cr
	Total: 17 cr		
THIRD YEAR			
WRIT 3130 Advanced Writing: Engineering ⁴	3 cr	ME 3211 Thermodynamics	3 cr
IE 3122 Materials Engineering lab	2 cr	ME 3222 Controls & Kinematics lab	2 cr
IE 3125 Engineering Economic Analysis	3 cr	ME 3230 Kinematics & Mechatronics	3 cr
IE 3130 Materials Processing Engineering	3 cr	ME 4145 CAD/CAM	4 cr
ME 3111 Fluid Mechanics	3 cr	Liberal education ²	<u>3 cr</u>
ME 3140 System Dynamics & Control	<u>3 cr</u>		Total: 15 cr
	Total: 17 cr		
FOURTH YEAR			
EMGT 4110 Engineering Professionalism & Practice	2 cr	IE 4993 Industrial Engineering Seminar	1 cr
ME 4112 Heat & Mass Transfer ⁵	3 cr	ME 4255 Multidisciplinary Senior Design	4 cr
ME 4122 Heat Transfer, Thermo. & Fluid Mechanics lab	2 cr	ME elective ⁷	3 cr
ME 4175 Machine Design	3 cr	ME elective ⁷	3 cr
ME technical elective ⁶	3-4 cr	Liberal education ²	<u>4 cr</u>
Liberal education ²	<u>3 cr</u>		Total: 15 cr
	Total: 16-17cr		

[^]First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

¹ Students must choose one computer programming course from the following: CS 1121, CS 1131, CS 1511 or CS 2121.

² In addition to the above listed requirements, students must complete one course *each* from liberal education categories 7, 8, and 9, and one additional course from *either* 9 or 10. Courses from categories 9 and 10 must have different course designators.

³ Students may take both ENGR 1210 and IE 2222 in place of IE 1225.

⁴ Students may take WRIT 3150 or WRIT 3180 in place of WRIT 3130.

⁵ Students may take ChE 3112 in place of ME 4112.

⁶ Students must take 3 credits of ME technical electives chosen from the following ME courses: 4135, 4245, 4495, 5305, 5315, 5325, 5335.

⁷ Students must take 2 courses and at least 6 credits of ME electives. See list of elective course options in the 2007-09 catalog

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MECHANICAL ENGINEERING, B.S.

MAJOR COURSE REQUIREMENTS	CREDITS	PREREQUISITES	SEMESTER TO BE COMPLETED	GRADE
FIRST YEAR				
WRIT 1120 College Writing	3			
CHEM 1151 General Chemistry I	5	HS chemistry, HS algebra		
CS programming course ¹	3-5			
IE 1225 Intro to Design and Manufacturing Engineer. ³	4	MATH 1296 or 1596		
MATH 1296 Calculus I [^] or MATH 1596 Honors Calculus I	5	Math placement or MATH 1250 Placement		
MATH 1297 Calculus II or MATH 1597 Honors Calculus II	5	MATH 1290, 1296 or 1596 with C- or better MATH 1596		
PHYS 2011 General Physics I	4	MATH 1296 or 1596		
Liberal education requirement ²	3			
SECOND YEAR				
ECE 2006 Electrical Circuit Analysis	4	PHYS 2011, MATH 3280 (concurrent reg. OK)		
ECON 1022 Principles of Economics: Macro or ECON 1023 Principles of Economics: Micro	3	15 credits or department consent 15 credits or department consent		
ENGR 2015 Statics	3	MATH 1297, PHYS 2011		
ENGR 2110 Intro to Material Science for Engineers	3	CHEM 1151, ENGR 2015 (concurrent reg. OK)		
ENGR 2016 Mechanics of Materials	3	ENGR 2015, MATH 3280 (concurrent reg. OK)		
ENGR 2026 Dynamics	3	ENGR 2015, MATH 3280 (concurrent reg. OK)		
MATH 3280 Differential Equations w/Linear Algebra	4	MATH 1297 with a C- or better		
MATH 3298 Calculus III	4	MATH 1297 with a C- or better		
PHYS 2012 General Physics II	4	MATH 1297, PHYS 2012		
STAT 3411 Engineering Statistics	3	MATH 1297		
THIRD YEAR				
WRIT 3130 Advanced Writing: Engineering ⁴	3	WRIT 1120, 60 credits		
IE 3122 Materials Engineering lab	2	IE 2222		
IE 3125 Engineering Economic Analysis	3	BSIE or BMSE major, STAT 3411 (concurrent OK)		
IE 3130 Materials Processing Engineering	3	ENGR 2110, 2016, STAT3411		
ME 3111 Fluid Mechanics	3	Engr 2026, BSME or BSChE cand		
ME 3140 System Dynamics & Control	3	CS course, ECE 2006, Math 3298, BSME		
ME 3211 Thermodynamics	3	Phys 2012, ME 3111, BSME		
ME 3222 Controls & Kinematics lab	2	3140 with C- or better, IE 3122, concurrent w/3230		
ME 3230 Kinematics & Mechatronics	3	3140		
ME 4145 CAD/CAM	4	ENGR 2016, BSIE Intl Eng, or BSME candidate		
Liberal education ²	3			
FOURTH YEAR				
EMGT 4110 Engineer. Professionalism & Practice	2	WRIT 31xx, Engineer. major, w/in 2 sem. of grad		
IE 4993 Industrial Engineering Seminar	1	BSIE, BSME, BSChE, BSECE, or MEHS cand.		
ME 4112 Heat & Mass Transfer ⁵	3	3211, Math 3298, BSME or BSChE candidate		
ME 4122 Heat Transfer, Thermo., Fluid Mech. lab	2	Concurrent w/4112 or ChE 3112 or instructor perm.		
ME 4175 Machine Design	3	Engr 2016, Engr 2110, BSME candidate		
ME 4255 Multidisciplinary Senior Design	4	EMgt 4110, BSME candidate		
ME technical elective ⁶	3			
ME elective ⁷	3			
ME elective ⁷	3			
Liberal education ²	3-4			
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³ Students may take both ENGR 1210 and IE 2222 in place of IE 1225.

⁴ Students may take WRIT 3150 or WRIT 3180 in place of WRIT 3130.

⁵ Students may take ChE 3112 in place of ME 4112.

⁶ Students must take 3 credits of ME technical electives chosen from the following ME courses: 4135, 4245, 4495, 5305, 5315, 5325, 5335.

⁷ Students must take 2 courses and at least 6 credits of ME electives. See list of elective course options in the 2007-09 catalog.