

# BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING - MICRO- AND NANOENGINEERING

Code	Title	Credit Hours
<b>Wellness Requirement</b>		
APPH 1040	Scientific Foundations of Health	2
	or APPH 10 The Science of Physical Activity and Health	
	or APPH 10 Flourishing: Strategies for Well-being and Resilience	
<b>Core IMPACTS</b>		
<b>Institutional Priority</b>		
CS 1371	Computing for Engineers	3
<b>Mathematics and Quantitative Skills</b>		
MATH 1552	Integral Calculus <sup>2</sup>	4
<b>Political Science and U.S. History</b>		
HIST 2111	The United States to 1877	3
	or HIST 2111 The United States since 1877	
	or INTA 1200 American Government in Comparative Perspective	
	or POL 1101 Government of the United States	
	or PUBP 3000 American Constitutional Issues	
<b>Arts, Humanities, and Ethics</b>		
Any HUM		6
<b>Communicating in Writing</b>		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
<b>Technology, Mathematics, and Sciences</b>		
PHYS 2211	Principles of Physics I <sup>2</sup>	4
PHYS 2212	Principles of Physics II	4
MATH 1551	Differential Calculus <sup>2</sup>	2
MATH 1553	Introduction to Linear Algebra <sup>2</sup>	2
	or MATH 1551 Linear Algebra	
	or MATH 1553 Linear Algebra with Abstract Vector Spaces	
<b>Social Sciences</b>		
Any SS		9
<b>Field of Study</b>		
CHEM 1310	Principles of General Chemistry for Engineers <sup>6</sup>	4
ME 1670	Introduction to Engineering Graphics and Design	3
MATH 2551	Multivariable Calculus <sup>2</sup>	4
MATH 2552	Differential Equations <sup>2</sup>	4
MSE 2001	Principles and Applications of Engineering Materials	3
<b>Major Requirements</b>		
Ethics Requirement <sup>1</sup>		
COE 2001	Statics <sup>2</sup>	2
ME 2016	Computer Applications	3
ME 2110	Creative Decisions and Design	3
ME 2202	Dynamics of Rigid Bodies	3

ME 3017	System Dynamics	3
ME 3057	Experimental Methodology and Technical Writing	3
ME 3058	ME Systems Laboratory	3
ME 3322	Thermodynamics	3
ME 3340	Fluid Mechanics	3
ME 3345	Conduction and Radiation Heat Transfer	3
COE 3001	Mechanics of Deformable Bodies	3
ME 3210	Design, Materials, and Manufacture	3
ME 4182	Mechanical Design Engineering	3
	or ME 4723 Interdisciplinary Capstone Design	
<b>Other Engineering Requirements</b>		
ECE 3710	Circuits and Electronics	2
ECE 3741	Instrumentation and Electronics Lab	1
ISYE 3025	Essentials of Engineering Economy	1
MATH 3670	Probability and Statistics with Applications	3
	or ECE 3077 Prob/Stats for ECE	
	or ISYE 3775 Statistics and Applications	
<b>Micro- and Nanoengineering Concentration</b>		
ME 4315	Energy Systems Analysis and Design	3
Select four of the following: <sup>3</sup>		12
	CHBE 4020 Chemical Engineering in Nanoscale Systems	
	CHBE 4050 The Science and Engineering of Microelectronic Fabrication	
	CHEM 3412 Physical Chemistry II	
ME 4699	Undergraduate Research (In MEMs or Nano)	
ME 4766	Fabrication and Properties of Nanoscale Devices	
MSE 4325	Thin Film Materials Science	
MSE 4330	Fundamentals of Nanomaterials and Nanostructures	
MSE 4335	Soft Nano and Bio Materials	
PHYS 4262	Solid-state Physics	
<b>Free Electives</b>		
Free Electives <sup>3,4,5</sup>		6
<b>Total Credit Hours</b>		<b>129</b>

No pass-fail courses allowed except for Ethics overlay requirement.

Student must earn a 2.0 GPA within Major Requirements and MSE 2001, ECE 3710, ECE 3741, and ISYE 3025.

If a course is repeated, only the latest grade is included in the calculation of the Major Requirements GPA.

<sup>1</sup> Students must complete one Ethics course during their program.

<sup>2</sup> Minimum grade of C required.

<sup>3</sup> At least 3 credit hours in either the Concentration Electives or Free Electives must be a 3000-level or higher ME course. ME 3141, ME 3700, ME 3720, ME 3743, ME 3744, ME 4699, ME 4741, ME 4742, ME 4753, and ME 4903 are not allowed.

<sup>4</sup> Excludes CEE 2040, PHYS 2802, PHYS 2XXX (AP Credit) and MGT 2250.

<sup>5</sup> Students can use a maximum of 6 credit hours of VIP courses (ECE 2811, ECE 38X1, ECE 48X1) or a maximum of 6 credit hours of undergraduate research and special problems courses (2699, 4699, 4903 from any department) not to exceed 9 credit hours from both course groups towards the degree requirements for the BSME degree.

<sup>6</sup> CHEM 1211K can substitute for CHEM 1310. CHEM 1211K and CHEM 1212K are recommended for pre-health students.

<sup>7</sup> Students must complete one course from the following list that includes appropriate economic content relevant to the program: ECON 2100, ECON 2101, ECON 2105, or ECON 2106. Note that ECON 2100, 2101, 2105, 2106 may also be applied toward Core IMPACTS Social Science credit hours. You should discuss this with your academic advisor to ensure that you are taking the most efficient path to complete both areas.