

# BS in Applied Engineering - Concentration in Engineering Management

## Program Requirements

The BS in applied engineering with a concentration in engineering management requires the completion of 120 credit hours for graduation and includes 32 credit hours of mathematics and natural sciences and 64 credit hours of major courses. All the prerequisite courses must be completed with a minimum grade point average of 2.000.

In addition to meeting the requirements of the WSU General Education Program (<http://catalog.wichita.edu/undergraduate/academic-information/general-education-program/>) and the requirements of the College of Engineering, students in the BS in applied engineering with a concentration in engineering management must take the following courses:

Course	Title	Hours
<b>General Education (34-35 credit hours)</b>		
Select courses to meet General Education requirements <sup>1</sup>		15-18
General Education courses that will also meet Program Requirements		
FYAP 102A	First-Year Seminar: Introduction to Technology and Innovation <sup>2</sup>	3
ECON 201	Principles of Macroeconomics	3
PHIL 385	Engineering Ethics	3
PHYS 313	Physics for Scientists I	4
PHYS 315	University Physics Lab I	1
MATH 242	Calculus I	5
<b>Program Required Mathematics/Natural Sciences</b>		
GEOL 300	Energy, Resources and Environment <sup>3</sup>	3
BIOL 370	Introductory Environmental Science <sup>3,4</sup>	3
IME 254	Engineering Probability and Statistics I	3
or STAT 370	Elementary Statistics	
MATH 243	Calculus II <sup>5</sup>	5
MATH 451	Computational Mathematics Using MATLAB <sup>3,5</sup>	3
CHEM 211	General Chemistry I <sup>3</sup>	5
or PHYS 314 & PHYS 316	Physics for Scientists II and University Physics Lab II	
<b>Applied Engineering Core <sup>6</sup></b>		
AE 223	Statics	3
APEN 334	Introduction to Strength and Mechanics of Materials	3
APEN 354	Statistical Process Control	3
APEN 441	Analysis of Decision Processes in Technology	3
APEN 492	Energy Management and Sustainability	3
APEN 201	Introductory Design Project <sup>2</sup>	1
APEN 301	Intermediate Design Project	1
APEN 401	Senior Project I	3
APEN 402	Senior Project II	3
IME 222	Engineering Graphics	2
IME 222L	Graphics Lab	1
IME 258	Manufacturing Methods and Materials I	3

IME 258L	Manufacturing Methods and Materials I Lab	1
<b>Engineering+ Program</b>		
Completion of the Engineering+ program <sup>7</sup>		
<b>Required Courses for Engineering Management Concentration</b>		
ENGR 220	Applied Analog and Digital Electronics	3-4
or ECE 282	Circuits I	
APEN 210	Introduction to Facilities Management	3
APEN 572	Applied Machine Learning	3
APEN 664	Engineering Project Management	3
BADM 162	Business Software: Excel	1
ACCT 210	Financial Accounting	3
DS 350	Operations Management	3
BLAW 431	Legal Environment of Business	3
<b>Engineering Elective</b>		
Select one of the following courses		3-4
APEN 361	Industrial Controls and Instrumentation	
APEN 510	Solar and Wind Engineering	
<b>Technical Electives</b>		
Select 5-9 credit hours of technical electives preapproved and documented by an applied engineering faculty advisor. Please refer to the applied engineering website or consult with your applied engineering advisor for a current list of technical electives. <sup>1</sup>		5-9
<b>Total Credit Hours</b>		<b>120</b>

- <sup>1</sup> Required major courses may also count towards General Education requirements. Students will need to select additional technical electives to reach 120 credit hours required for graduation with assistance from an advisor.
- <sup>2</sup> All first-year college students must take FYAP 102A within their first two semesters. Transfer students will take ENGR 205 to replace APEN 201 and to satisfy the FYAP 102A requirement.
- <sup>3</sup> May count as a general education course.
- <sup>4</sup> With approval from the department chair, students may substitute with any BIOL course or, if CHEM 211 is not taken, any CHEM course.
- <sup>5</sup> With approval from the department chair, students may substitute with any MATH 300 level or above course.
- <sup>6</sup> All applied engineering students must complete these courses, regardless of applied engineering concentration.
- <sup>7</sup> Details outlined under College of Engineering Requirements (<http://catalog.wichita.edu/undergraduate/engineering/#graduationrequirements>), #2.

## Applied Learning

Students in applied engineering programs are required to complete an applied learning or research experience to graduate from the programs. The requirement can be met by completing the three-course capstone design experience consisting of APEN 301, APEN 401 and APEN 402.