

BS in Applied Engineering - Concentration in Process Automation

Program Requirements

The BS in applied engineering with a concentration in process automation 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 process automation must take the following courses:

Course	Title	Hours
General Education (34-35 credit hours)		
Select courses to meet General Education requirements ¹		15-18
General Education courses that will also meet Program Requirements		
FYAP 102A	First-Year Seminar: Introduction to Technology and Innovation ²	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
Program Required Mathematics/Natural Sciences		
GEOL 300	Energy, Resources and Environment ³	3
BIOL 370	Introductory Environmental Science ^{3,4}	3
STAT 370 or IME 254	Elementary Statistics ³ Engineering Probability and Statistics I	3
MATH 243	Calculus II ³	5
MATH 451	Computational Mathematics Using MATLAB ^{3,5}	3
PHYS 314	Physics for Scientists II ³	4
PHYS 316	University Physics Lab II ³	1
Applied Engineering Core ⁶		
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 ²	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
Engineering+ Program		

Completion of the Engineering+ program ⁷

Required Courses for Process Automation Concentration		
APEN 323	Introduction to Fluids	3
APEN 320	Circuits Technology with Lab	4
or ECE 282	Circuits I	
APEN 348	Machine Elements	3
APEN 361	Industrial Controls and Instrumentation	4
APEN 410	Robotics Technology	3
APEN 411	Microcomputer-Based Mechanical Systems Technologies	3
APEN 497	Electrical Machines and Electronic Circuits	4

Technical Electives

Select 7-10 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. ¹

Total Credit Hours **120**

- ¹ 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.
- ² 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.
- ³ May count as a general education course.
- ⁴ With approval from the department chair, students may substitute with any BIOL or CHEM course.
- ⁵ With approval from the department chair, students may substitute with any MATH 300 level or above course.
- ⁶ All applied engineering students must complete these courses, regardless of applied engineering concentration.
- ⁷ 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.