

Millersville University  
Dept. of Applied Engineering, Safety &  
Technology

120 credits minimum – Updated Spring 2020  
(rev FA21-AENG)

**Bachelor of Science (B.S.)**  
**Applied Engineering & Technology Management (AETM)**  
**Concentration: Robotics & Control Systems Technology**

**DEPARTMENTAL REQUIREMENTS** (60 credits)

Technical Option (36 credits)

Grade	Course No.	Title	Cr
	AENG 130	Production Materials & Processes	3
	AENG 241	Drafting Communications	3
	AENG 261	Electronic Systems	3
	AENG 262	Semiconductor Electronics ( <i>prereq AENG 261</i> )	3
	AENG 325	Power Conversion & Control ( <i>prereq AENG 120 or 261</i> )	3
	AENG 326	Fluid Power ( <i>prereq AENG 120 or 325</i> )	3
	AENG 342	Computer-Aided Engineering Drawing ( <i>prereq AENG 241</i> )	3
	AENG 364	Digital Electronics ( <i>prereq AENG 262</i> )	3
	AENG 425	Industrial Robotic Systems ( <i>prereq AENG 325</i> )	3
	AENG 427	Programmable Logic Controllers ( <i>prereq AENG 425; and MATH 151 or 161</i> )	3
	AENG 466	Wireless Communication Systems ( <i>prereq AENG 262</i> )	3
	AENG 467	Mobile Robotic Systems ( <i>prereq AENG 262</i> )	3

Technology Management Core (15 credits)

Grade	Course No.	Title	Cr
	OSEH 120	Safety, Health & Environmental Issues	3
	AENG 492	Technical Entrepreneurship ( <i>prereq AENG 130 or AENG 241; and BUAD 251; and junior or senior class status</i> )	3
	AENG 494	Total Quality Management ( <i>prereq MATH 130; and senior class status</i> )	3
	BUAD 251	Principles of Management [W] ( <i>prereq C- or higher in ECON 101 &amp; ECON 102; and ENGL 110</i> ); must earn a C- or higher as a prereq for MGMT 452	3
	MGMT 452	Prod & Oper Mgmt ( <i>prereq: C- or higher in BUAD 251; and MATH 130; and MATH 151, 160 or 161</i> )	3

Electives Courses in Technology Management (9 credits)

Grade	Course No.	Title	Cr
		Select <b>THREE</b> courses from the following list.	
		• AENG 300 Internship ( <b>maximum of 6 credits internship may be counted for the degree</b> )	3
		• AENG 400 Internship ( <b>maximum of 6 credits internship may be counted for the degree</b> )	3
___	1. ___	• AENG 392 Intro to Industrial Training [W] ( <i>prereq ENGL 110</i> )	3
		• OSEH 221 Industrial Fire Prevention	3
___	2. ___	• OSEH 320 Safety Engineering Principles ( <i>prereq OSEH 120</i> )	3
		• OSEH 323 Human Factors in OSEH ( <i>prereq OSEH 120</i> )	3
___	3. ___	• OSEH 333 Intro to System Safety ( <i>prereq OSEH 320 and MATH 130</i> )	3
		• BUAD 161 Intro to Financial Accounting ( <i>prereq MATH 101 or 151</i> )	3
		• BUAD 352 Human Resource Mgmt ( <i>prereq C- or higher in BUAD 251</i> )	3
		• MGMT 353 Labor-Mgmt Relations ( <i>prereq C- or higher in BUAD 251</i> )	3
		• MGMT 357 International Mgmt ( <i>prereq C- or higher in BUAD 251</i> )	3
		• PSYC 329 Industrial/Org Psyc ( <i>prereq ENGL 110, PSYC 100</i> ) [W]	3

Prereqs are subject to change; consult the MU Web Schedule before registering to verify prereq requirements

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		• SOCY 318 Sociology of Complex Organizations	3
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**REQUIRED RELATED COURSES** (19-21 credits)

Required Related – Math *(Fulfills the Gen Ed Math Requirement plus one course in G2)*

Grade	Course No.	Title	Cr
	MATH 130	Elements of Statistics <i>(prereq: See Web Schedule or Undergrad Catalog)</i>	3
	MATH ____	<b>Select ONE from:</b> • MATH 151 Calc for Mgmt, Life <i>(prereq C- or higher in MATH 101 or MPT 151)</i> • MATH 161 Calculus I <i>(prereq C- or higher in MATH 160 or MPT 161)</i>	4 4

Required Related – Science *(Fulfills two G2 courses)*

Grade	Course No.	Title	Cr
		<b>Select TWO from:</b>	
		• CHEM 101 Chem! Better Things	3
		• CHEM 103 General, Organic, Biochem I	3
		• CHEM 104 General, Organic, Biochem II	3
		• PHYS 103 Elements of Physics } <i>Can receive credit for either</i>	4
		• PHYS 104 Applied Physics } <i>PHYS 103 or 104, but not for both</i>	4
		• PHYS 131 Physics I	4
		• PHYS 132 Physics II	4

*Must complete one science course with a lab component*

Required Related – Economics *(Fulfills two G3 courses)*

Grade	Course No.	Title	Cr
	ECON 101	Macroeconomics	3
	ECON 102	Microeconomics	3

**GENERAL EDUCATION REQUIREMENTS** (48 credits)

*Note: 18 credits of Gen Ed are fulfilled by Required Related Courses*

G1 – HUMANITIES & FINE ARTS *[ART, COMM/THEATRE, ENGL, FOREIGN LANG/HUMN, MUSI, PHIL]* (9 credits)

Grade	Course No.	Title	Cr
			3
			3
			3

*Maximum of two courses from the same dept; all three courses could be from*

G2 – SCIENCE & MATH — *These credits are fulfilled by Required Related Math & Science* (9 credits)

G3 – SOCIAL SCIENCES *[AFAM, ANTH, BUAD, GEOG, GOVT, HIST, INTL, PSYC, SOCY, SOWK/GERT, WSTU]* (9 credits)

Grade	Course No.	Title	Cr
<b>x</b>	<b>x</b>	<i>fulfilled by ECON 101</i>	3
<b>x</b>	<b>x</b>	<i>fulfilled by ECON 102</i>	3
<b>x</b>	<b>x</b>	<i>fulfilled by BUAD 251</i>	3

Additional General Education Requirements (18 credits)

Grade	Course No.	Title	Cr
	COMM 100	Fundamentals of Speech <i>(minimum of "C-" required)</i>	3
	ENGL 110	English Composition <i>(minimum of "C-" required)</i>	3
<b>x</b>	<b>x</b>	Math course <i>(fulfilled by Required Related Math)</i>	3
	WELL 175	Wellness	3
		<b>Perspectives [P]</b> <i>(NOTE: AENG 301, 302, or 303 [D] recommended)</i>	3
		<b>UNIV 103 or Open Elective</b> <i>(Open Elective cannot be a course from major)</i>	3

		dept)	
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Advanced Writing (AW) Course (3 credits)

Grade	Course No.	Title	Cr
	ENGL ____	<b>Select <u>ONE</u> from:</b> • ENGL 312 Technical Writing      • ENGL 318 Web Writing • ENGL 316 Business Writing      • ENGL 319 Science Writing	3

GENERAL EDUCATION REQUIREMENTS CHECKLIST:

Three G1, G2, or G3 courses at **200-LEVEL OR HIGHER:** (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) BUAD 251  completed

Three **WRITING** [W] courses (*does not include ENGL 312/316*): (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) BUAD 251   
completed

One **CULTURAL DIVERSITY** [D] course: *NOTE: AENG 303 is a [D]* (1) \_\_\_\_\_

FREE ELECTIVES (9-11 credits) – needed to bring overall total to 120 credits; depends on credit value of science & math courses selected

\_\_\_\_ \_\_\_\_\_ \_\_ cr      \_\_\_\_ \_\_\_\_\_ \_\_ cr  
 \_\_\_\_ \_\_\_\_\_ \_\_ cr      \_\_\_\_ \_\_\_\_\_ \_\_ cr