

Millersville University
Department of Applied Engineering, Safety & Technology

Applied Engineering & Technology Management (AETM) – Bachelor of Science – 120 credits minimum

Course Titles
(3-credit courses)

AENG 110	Communication & Information Systems	AENG 347	Engineering Visualization (prereq AENG 241)
AENG 120	Energy & Power Systems	AENG 348	Green Buildings & Sustainable Systems (prereq AENG 241 & MATH 130)
AENG 130	Production Materials & Processes	AENG 351	Digital Imaging
AENG 241	Drafting Communications	AENG 355	Contemporary Printing (prereq AENG 251)
AENG 243	Technical Sketching, Design & Rendering	AENG 356	Desktop Publishing (prereq ENGL 110) [R&D]
AENG 251	Print Media Systems (prereq AENG 110 or ART 244 or COMM 201)	AENG 357	Packaging & Specialty Printing (prereq AENG 241 & 251; or ART 348)
AENG 252	Web Publishing Systems (prereq AENG 110)	AENG 364	Digital Electronics (prereq AENG 262)
AENG 261	Electronic Systems	AENG 375	Polymer Ceramic Technology (prereq AENG 271)
AENG 262	Semiconductor Electronics (prereq AENG 261)	AENG 376	Wood Technology (prereq AENG 271)
AENG 271	Processing Nonmetallic Matls (prereq AENG 130)	AENG 382	Automated Manufacturing (prereq AENG 130; and 241; and 271 or 281 or 342)
AENG 281	Metallic Materials & Production Methods (prereq AENG 130)	AENG 425	Industrial Robotic Systems (prereq AENG 325) [R&D]
AENG 325	Power Conversion & Control (prereq AENG 120 or 261)	AENG 427	Prog Logic Controllers (prereq AENG 425; & MATH 151 or 161) [R&D]
AENG 326	Fluid Power (prereq AENG 120 or 325) [R&D]	AENG 433	Construction Project Management (prereq AENG 332)
AENG 331	Construction Technology I (prereq AENG 271)	AENG 446	Computer-Aided Drafting & Design (prereq AENG 342)
AENG 332	Construction Technology II (prereq AENG 271)	AENG 448	Machine Tool Design (prereq AENG 342)
AENG 342	Computer-Aided Engineering Drawing (prereq AENG 241)	AENG 455	Research & Development in Graphic Comm. (prereq AENG 355) [R&D]
AENG 344	Product Design (prereq AENG 241) [R&D]	AENG 457	Print Prod Mgmt & Cost Estimating (prereq AENG 355 & MATH 130)
AENG 345	Statics & Strength of Matls (prereq AENG 241; and MATH 151, 160 or 161)	AENG 466	Wireless Communication Systems (prereq AENG 262) [R&D]
AENG 346	Architectural Drawing & Design (prereq AENG 241)	AENG 467	Mobile Robotic Systems (prereq AENG 262) [R&D]

Department Requirements (36 credits) - Complete one of the seven Technical Concentrations shown

Advanced Manufacturing	Computer Aided Drafting & Design	Construction Management	General Technology	Graphic Communications	Nanofabrication Manufacturing	Robotics & Control Systems	
AENG 120	AENG 110	AENG 120	AENG 110	AENG 110	AENG 110	AENG 130	
AENG 130	AENG 120	AENG 130	AENG 120	AENG 241	AENG 120	AENG 241	
AENG 241	AENG 130	AENG 241	AENG 130	AENG 251	AENG 130	AENG 261	
AENG 271	AENG 241	AENG 271	AENG 241	AENG 252	AENG 241	AENG 262	
AENG 281	AENG 243	AENG 331	AENG 251 or 252	AENG 344	AENG 261	AENG 325	
AENG 325	AENG 342	AENG 332	AENG 261	AENG 351	AENG 262	AENG 326	
AENG 342	AENG 344	AENG 345	AENG 271	AENG 355	To be completed during 1 semester at Penn State, State College campus: NFMT 311, 312, 313, 314, 315, 316	AENG 342	
AENG 375	AENG 345	AENG 346	AENG 281	AENG 356		AENG 364	
AENG 376	AENG 346	AENG 347	AENG 325 or 326	AENG 357		AENG 425	
AENG 382	AENG 347	AENG 348	AENG ___ *	AENG 455		AENG 427	
AENG 425	AENG 446	AENG 433	AENG ___ *	AENG 457		AENG 466	
AENG 448	AENG 448	AENG 326, 342 or 376	AENG ___ *	AENG __ AENG 120, 130, 243, 342, 347, 498, 515; ART 133, 142, 240, 306; BUAD 231; COMM 206, 220		AENG 467	
			* 300-level or higher lab course			CHEM 312	

Technology Management Core (15 credits) *

Elective Courses in Technology Management (9 credits) ^

OSEH 120 Safety, Health & Environmental Issues	Select 3 ^ courses from the following: ^ Exceptions: Construction Option, select 2; Nanofab option, select 1
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AENG 492	Technical Entrepreneurship (prereq AENG 130 or AENG 241; and BUAD 251; and jr or sr class status)	AENG 300	Internship	} maximum of 6 credits internship may be counted for degree
AENG 494	Total Quality Management (prereq MATH 130 or 235)	AENG 400	Internship	
BUAD 251	Principles of Management (prereq C- or higher in ECON 101 & 102; ENGL 110)	AENG 392	Industrial Training (prereq ENGL 110)	
MGMT 452	Production & Operations Mgmt (MATH 130; and MATH 151, 160 or 161; and C- or higher in BUAD 251)	OSEH 221	Industrial Fire Prevention	
		OSEH 320	Safety Engineering Principles (prereq OSEH 120)	
		OSEH 323	Human Factors	
		OSEH 333	Intro to System Safety (prereq OSEH 320 & MATH 130)	
		BUAD 161	Intro to Financial Accounting (prereq MATH 101 or 151)	
		BUAD 352	Human Resource Mgmt (prereq BUAD 251)	
		MGMT 353	Labor-Mgmt Relations (prereq BUAD 251)	
		MGMT 357	International Mgmt (prereq BUAD 251)	
		PSYC 329	Industrial/Organizational Psyc (prereq ENGL 110, PSYC 100)	
		SOCY 318	Sociology of Complex Organizations	

*** Exceptions**

- For Construction Option (18 credits) – OSEH 222 is required in this block
- For Nanofabrication Option (18 credits) – AENG 400 or 498 is required in this block

Required Related Courses (19-21 credits)

Advanced Manufacturing	Computer Aided Drafting & Design	Construction Management	General Technology	Graphic Communications	Nanofabrication Manufacturing	Robotics & Control Systems
ECON 101 ECON 102 MATH 130	ECON 101 ECON 102 MATH 130	ECON 101 ECON 102 MATH 130	ECON 101 ECON 102 MATH 130	ECON 101 ECON 102 MATH 130	ECON 101 ECON 102 MATH 130	ECON 101 ECON 102 MATH 130
<i>Select one from:</i> MATH 151 MATH 160 MATH 161	<i>Select one from:</i> MATH 151 MATH 160 MATH 161	<i>Select one from:</i> MATH 151 MATH 160 MATH 161	<i>Select one from:</i> MATH 151 MATH 160 MATH 161	<i>Select one from:</i> MATH 151 MATH 160 MATH 161	<i>Select one from:</i> MATH 151 MATH 160 MATH 161 MATH 236	<i>Select one from:</i> MATH 151 MATH 161
<i>Select two from:</i> CHEM 101 CHEM 103 CHEM 104 PHYS 103* PHYS 104* PHYS 131 PHYS 132	<i>Select two from:</i> CHEM 101 CHEM 103 CHEM 104 PHYS 103* PHYS 104* PHYS 131 PHYS 132	<i>Select two from:</i> CHEM 101 CHEM 103 CHEM 104 PHYS 103* PHYS 104* PHYS 131 PHYS 132	<i>Select two from:</i> CHEM 101 CHEM 103 CHEM 104 PHYS 103* PHYS 104* PHYS 131 PHYS 132	<i>Select two from:</i> CHEM 101 CHEM 103 CHEM 104 PHYS 103* PHYS 104* PHYS 131 PHYS 132	<i>Select one science combination:</i> • CHEM 103 & CHEM 104 • CHEM 111 & BIOL 100 • CHEM 111 & PHYS 103 or 104	<i>Select two from:</i> CHEM 101 CHEM 103 CHEM 104 PHYS 103* PHYS 104* PHYS 131 PHYS 132
<i>* Either PHYS 103 or 104, but not both</i>	<i>* Either PHYS 103 or 104, but not both</i>	<i>* Either PHYS 103 or 104, but not both</i>	<i>* Either PHYS 103 or 104, but not both</i>	<i>* Either PHYS 103 or 104, but not both</i>		<i>* Either PHYS 103 or 104, but not both</i>

Required Related Course Titles:

ECON 101 Macroeconomics, 3 cr
ECON 102 Microeconomics, 3 cr

MATH 130 Elements of Statistics, 3 cr
MATH 151 Calculus for Mgmt, Life, 4 cr
MATH 160 Precalculus, 4 cr
MATH 161 Calculus I, 4 cr

CHEM 101 Chem! Better Things, 3 cr
CHEM 103 General, Organic, Biochem I, 3 cr
CHEM 104 General, Organic, Biochem II, 3 cr

PHYS 103 Elements of Physics, 4 cr
PHYS 104 Applied Physics, 4 cr
PHYS 131 Physics I, 4 cr
PHYS 132 Physics II, 4 cr

General Education Requirements (48 credits)

- G1: Humanities & Fine Arts, (3 courses, 9 credits) [no more than two courses from the same department]

- G2: Science & Math, (3 courses, 9 credits) *[these 9 credits will be fulfilled by Required Related Science & Math courses]*
- G3: Social Sciences, (3 courses, 9 credits) *[6 credits will be fulfilled by Required Related ECON 101 and 102; third course may not be an ECON]*

- COMM 100 Fundamentals of Speech, 3 cr
- ENGL 110 English Composition, 3 cr
- MATH course, 3 cr *[fulfilled by Required Related MATH course]*
- Advanced Writing, 3 cr: Select from ENGL 312 Technical Writing or ENGL 316 Business Writing or ENGL 318 Web Writing or ENGL 319 Science Writing
- Perspectives course (AENG 301, 302 or 303 recommended), 3 cr
- WELL 175, 3 cr
- UNIV 103 First Year Inquiry or one Open Elective, 3 cr *[Open Elective may not be a course from major dept.]*

- ▶ Three 200-level or higher courses within the G1, G2, and/or G3 blocks *(one is fulfilled by BUAD 251)*
- ▶ Three Writing courses *(one is fulfilled by BUAD 251) [Advanced Writing courses—ENGL 312, 316, 318 and 319—do **not** count as Writing courses]*
- ▶ Cultural Diversity course *[any course with the gen ed “D” label]*

Additional free electives (additional credits as needed to meet the 120-credit minimum to graduate; depends on value of science & math courses selected)