

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: Nanofabrication Manufacturing Tech.**

DEPARTMENTAL REQUIREMENTS (60 credits)

Technical Option (36 credits)

Grade	Course No.	Title	Cr
	AENG 110	Communication & Information Systems	3
	AENG 120	Energy & Power Systems	3
	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
Courses to be completed during one semester of study at Penn State Univ., State College Campus:			
	NFMT 311	Materials, Safety & Equipment Overview for Nanotechnology	3
	NFMT 312	Basic Nanotechnology Processes	3
	NFMT 313	Materials in Nanotechnology	3
	NFMT 314	Patterning for Nanotechnology	3
	NFMT 315	Nanotechnology Applications	3
	NFMT 316	Characterization, Testing of Nanotechnology Structures & Materials	3

As of September 2015, all students participating in the nanofabrication program will be charged an additional \$2,500 fee to cover the cost of the NFMT capstone courses at Penn State Univ. Cost may vary depending on

Required Chemistry Course (*Note: CHEM 312 does NOT count as a G2 course*) (3 credits)

Grade	Course No.	Title	Cr
	CHEM 312	Chemistry in Nanotechnology (<i>prereq NFMT 313; and CHEM 104 or 111</i>)	3

Technology Management Core (18 credits)

Grade	Course No.	Title	Cr
	OSEH 120	Safety, Health & Environmental Issues	3
	AENG ____	Select ONE: <ul style="list-style-type: none"> • AENG 400 Internship in NFMT • AENG 498 Independent Study in MFMT Mgmt 	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 & 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 (3 credits)

Grade	Course No.	Title	Cr
		Select ONE course from the following list:	
		• AENG 392 Intro to Industrial Training [W] (<i>prereq ENGL 110</i>)	3
		• OSEH 221 Industrial Fire Prevention	3
		• OSEH 320 Safety Engineering Principles (<i>prereq OSEH 120</i>)	3
		• OSEH 321 Environmental & Industrial Hygiene I	3
		• OSEH 323 Human Factors in OSEH (<i>prereq OSEH 120</i>)	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 (prereq ENGL 110, PSYC 100) [W]	3
		• SOCY 318 Sociology of Complex Organizations	3

REQUIRED RELATED COURSES (18-21 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 (prereq: See Web Schedule or Undergrad Catalog)	3
	MATH ____	Select ONE from: • MATH 151 Calc for Mgmt, Life (prereq C- or higher in MATH 101 or MPT 151) • MATH 160 Precalculus (prereq C- or higher in MATH 101 or MPT 160) • MATH 161 Calculus I (prereq C- or higher in MATH 160 or MPT 161) • MATH 236 Elements of Statistics II (prereq MATH 130 or 235)	4 4 4 3

Required Related – Science (Fulfills two G2 courses)

Grade	Course No.	Title	Cr
Complete EITHER Option A or B or C of the science groupings shown below			
__ 1. ____	A	• CHEM 103 General, Organic, Biochem I	3
		• CHEM 104 General, Organic, Biochem II	3
__ 2. ____	B	• CHEM 111 Chemistry I	4
		• BIOL 100 General Biology	3
	C	• CHEM 111 Chemistry I	4
		• PHYS 103 or 104 Physics I or Applied Physics	4

Must complete one science course with

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
x	x	fulfilled by ECON 101	3
x	x	fulfilled by ECON 102	3
x	x	fulfilled by BUAD 251	3

Additional General Education Requirements (18 credits)

Grade	Course No.	Title	Cr
	COMM 100	Fundamentals of Speech (minimum of "C-" required)	3
	ENGL 110	English Composition (minimum of "C-" required)	3
x	x	Math course (fulfilled by Required Related Math)	3
	WELL 175	Wellness	3

