

MDE Concentration Guideline — *Nano Engineering*

Semester 1			Semester 2		
CHM 11500	GENERAL CHEMISTRY	4	ENGR 13200	TRANS IDEAS TO INNOV II	2
ENGR 13100	TRANS IDEAS TO INNOV II	2	GEN ED	GEN ED (Found Outcome OC) ²	3
GEN ED	GEN ED (Found Outcome WC) ¹	3	MA 16600	PL ANLY GEO CALC II	4
MA 16500	PL ANLY GEO CALC I	4	PHYS 17200	MODERN MECHANICS	4
			SCI SEL	FYE SCIENCE SELECTIVE	3
	Total	13		Total	16
Semester 3			Semester 4		
IDE 30100	PROF PREP IN IDE SEMINAR	1	AREA	AREA SELECTIVE ⁶	3
MA 26100	MULTIVARIATE CALCULUS	4	MFET 16300	GRAPH COM & SPAT ANLY ⁷	2
ME 20000	THERMODYNAMICS ³	3	ECE 20001	ELEC ENGR FUND I	3
ME 27000	BASIC MECHANICS I ⁴	3	ECE 20007	ELEC ENGR FUND I LAB ⁸	1
PHYS 24100	ELECTRICITY & OPTICS ⁵	3	MA 26200	LIN ALG AND DIF EQU ⁹	4
			ME 27400	BASIC MECHANICS II ¹⁰	3
	Total	14		Total	16
Semester 5			Semester 6		
AREA	AREA SELECTIVE ⁶	3	ENGR SELECTIVE	ENGR SELECTIVE ¹²	3
CE 34000	HYDRAULICS ¹¹	3	ENGR SELECTIVE	ENGR SELECTIVE (design) ¹⁵	3
CE 34300	HYDRAULICS LAB ⁸	1	GEN ED	GEN ED (Found Outcome BSS) ¹⁶	3
ENGR SELECTIVE	ENGR SELECTIVE ¹²	3	GEN ED	GEN ED (300 level or non intro) ¹⁷	3
GEN ED	GEN ED (Found Outcome H) ¹³	3	IDE 36000	MDE STATISTICS ¹⁸	3
NUCL 27300	MECHANICS OF MATERIALS ¹⁴	3			
	Total	16		Total	15
Semester 7			Semester 8		
AREA	AREA SELECTIVE ⁶	3	AREA	AREA SELECTIVE ⁶	3
ENGR SELECTIVE	ENGR SELECTIVE ¹²	3	AREA	AREA SELECTIVE ⁶	3
GEN ED	GEN ED (Found Outcome STS) ¹⁹	3	ENGR SELECTIVE	ENGR SELECTIVE ¹²	3
GEN ED	GEN ED ¹⁷	3	GEN ED	GEN ED(300 level or non intro) ¹⁷	3
IDE 48300	MDE ENGR ANALYSIS/DECISION ²⁰	1	IDE 485	MDE ENGR DESIGN PROJ ²¹	3
IDE 48400	MDE DESIGN METHODOLOGY	1			
IDE 48700	MDE SENIOR DEVELOPMENT	1			
	Total	15		Total	15

¹Written Communication University foundational outcome. Courses can be found at:
<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html>

²Oral Communication University foundational outcome. Courses can be found at:
<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html>

³other options include ABE 20001, 21000, CE 21101, CHE 21100, MSE 26000

⁴other options include CE 29700, AAE 20300

⁵sophomore science selective. Other options include PHYS 27200 or BIOL 11000, 20300, 22100, 23000, 23100 or CHM 11600, 25500, 25700, 26100, 32100 or EAPS 10400, 10500, 10900, 11100, 11200, 11300, 11600, 11700, 12000, 13800, 17100 (May not be the same course used as FYE Science Selective.)

⁶Choose one of the following options for AREA classes:

Physics Sequence (3 required courses)

PHYS 31000 (4cr), PHYS 34200 (3cr), PHYS 36000 (3cr)

Or

Chemistry Sequence (4 required courses)

CHM 37300 (3cr), CHM 37301 (1cr) CHM 37400 (3cr) CHM 37401 (1cr)

Additional Area credits (5 - 7) must be taken in STEM and approved. Consult with Academic Advisor.

⁷other options include CM 16400; THTR 25400, 55400.

⁸hands on (not computer) engineering lab; other options include 1 credit engineering lab class (AAE 20401, AAE 33301, CE 34300, ME 30801 etc.); 1 credit from a 2 credit engineering lab class (BME 30600, NUCL 20500, etc.); 1 credit from a 3 credit engineering class that includes a lab (ABE 30500, IE 38600, MSE 23500, etc.); 1 credit from a 4 credit engineering class that includes a lab (CE 20300, CHE 37700, ECE 27000 etc.). Consult academic advisor for list of engineering lab courses.

⁹other option MA 26500 + MA 26600

¹⁰other option CE 29800

¹¹other options include AAE 33300, ME 30800, CHE 37700, MSE 34000

¹²Choose one of the following options:

Materials option:

Selective courses (Take 4 of the following)

MSE 23500, MSE 26000, MSE 27000, MSE 33000, MSE 33500, MSE 36700, MSE 37000

Electrical Option:

Two required courses:

ECE 20002, ECE 31100

Selective Courses (Take two of the following)

ECE 30500, ECE 45300, ECE research

¹³Humanities University foundational outcome. Courses can be found at:

<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html>

¹⁴other “materials course” options include MSE 23000, AAE 20400, ABE 30500, CHE 33000, ME 32300 (CODO from ME only)

¹⁵For *Electrical option*, ECE 27000 is required

For *Materials Option* course must be approved, consult with academic advisor. Some examples are: ABE 33000, ABE 43500, AAE 25100, CE 31100, CE 45600, CE 47000, ECE 27000, EPCS 30000+ level, IDE 38500, IE 38600, ME 26300(CODO from ME only), ME 35400, ME 41300, ME 44400

¹⁶Behavioral/Social Sciences University foundational outcome. Courses can be found at:

<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html>

¹⁷General education courses can be taken from the College of Liberal Arts, the Krannert School of Management, the Honors College, etc. provided such courses are not focused primarily on engineering, technology, the natural sciences, or mathematics. Consult with academic advisor for acceptable general education courses.

¹⁸other options include IE 23000, IE 33000

¹⁹Science Technology and Society University foundational outcome. Courses can be found at:

<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html> If EPCS is used to satisfy this outcome, 3 credits of EPCS must be taken, and an additional general education elective is required.

²⁰other option IE 34300

²¹other capstone design option instead of IDE 48400 + IDE 48500 is EPCS 41200 + EPCS 41200. Consult with academic advisor.

Additional Requirements:

A course listed on the Concentration Guideline *is not a guarantee that the course will be accessible/made available to a student*. Lack of availability could be due to any number of circumstances beyond the control of either student or program.

Engineering credits: A minimum 45 credits at 200+ level, of which at least 18 credits are at 300+ level and 6 credits of the 18 must be at 400+ level. Maximum number of credits in any engineering discipline is 24. It is the student’s responsibility to see that all prerequisites are met for selected courses.

30 credits must be Math and Basic Science (MA, BIOL, CHM, PHYS, EAPS, SLHS are some examples)

32 credits at 300+ level (any courses) must be taken at Purdue West Lafayette.

3 credits of “hands-on” (not computer lab) required. 2 credits must be engineering (See footnote 6). The third credit may be engineering on non-engineering. A non-engineering lab credit would be included in an AREA class. Some examples are BIOL, CHM, or PHYS lab classes or THTR and AD classes that include a studio component. Consult academic advisor for details.

Updated 08/14/2023