



WRIGHT STATE  
UNIVERSITY

# B.S. in Materials Science and Engineering

Program Guide: 2023-2024

Student's Name \_\_\_\_\_

UID# \_\_\_\_\_

First Year	Sem	Grade	(30 credit hours)	Pre-requisites	Fa	Sp	
CHM 1210	3.0	___	___	General Chemistry I..... <b>(C required)</b> ((CHM 1010 or H.S. Chem), MPL 25, & CHM 1210L)	★	a	
CHM 1210L	2.0	___	___	General Chemistry Laboratory I <b>(C required)</b> .....(CHM 1210c)	★	a	
EGR 1010	4.0 iw	___	___	Intro Mathematics for Engineering Appl.....(MTH 1350 or Note 8)	★	a	
ENG 1100	3.0	___	___	Composition I <b>(C required)</b> .....Level 40 on English placement test or minimum 21 ACT English)	★	a	
ME 1040	3.0	___	___	Engineering Design and Solid Modeling .....	★	a	
ME 1020	3.0	___	___	Engineering Programming With MATLAB <b>(C required)</b> .....(EGR 1010)	a	★	
MTH 2300	4.0	___	___	Calculus I .....	a	★	
PHY 2400	4.0	___	___	General Physics I <b>(C required)</b> .....((EGR 1010 or MTH 2300), PHY 2400Lc, and PHY 2400Rc)	a	★	
PHY 2400L	1.0	___	___	General Physics I Laboratory <b>(C required)</b> .....(PHY 2400c)	a	★	
WSC	___	___	___	Choose one from Element 5..... (Note 4)	a	★	
<b>Credit Hours per Semester in the Model Program.....</b>						<b>15</b>	<b>15</b>

Second Year	Sem	Grade	(33 credit hours)	Pre-requisites	Fa	Sp	
ME 2120	3.0	___	___	Statics <b>(C required)</b> .....(ME 2120Rc, (EGR 1010 or MTH 2300) and PHY 2400)	★	a	
ME 2600	1.0	___	___	Metallography .....	★	a	
ME 2700	3.0	___	___	Structure and Properties of Materials I <b>(C required)</b> .....(ME 2700Rc, CHM 1210 and PHY 2400)	★	a	
MTH 2310	4.0	___	___	Calculus II <b>(C required)</b> .....	★	a	
PHY 2410	4.0	___	___	General Physics II.....(MTH 2310c, PHY 2400, PHY 2410Lc, and PHY 2410Rc)	★	a	
PHY 2410L	1.0	___	___	General Physics II Laboratory.....(PHY 2410c)	★	a	
EE 2010	3.0	___	___	Analog Circuit Theory.....(MTH 2300 or EGR 1010 (see Note 10) & EE 2010Lc)	a	★	
EE 2010L	1.0	___	___	Analog Circuit Theory Laboratory..... (EE 2010c)	a	★	
EGR 3350	3.0	___	___	Technical Communication for Engineers and Scientists.....(ENG 1100 and full major standing)	a	★	
ME 3120	3.0	___	___	Mechanics of Materials .....	a	★	
MTH 2350	4.0	___	___	Differential Equations with Matrix Algebra..... (MTH 2310)	a	★	
WSC	___	___	___	Choose one from Element 3a..... (Note 4)	a	★	
<b>Credit Hours per Semester in the Model Program .....</b>						<b>16</b>	<b>17</b>

\*\*\*\*Students must meet full major requirements (24+ credit hours completed, 2.25 grade point average in courses specifically numbered on the program guide, and receive a C or higher in ENG 1100, PHY 2400/2400L, CHM 1210/1210L, (EGR 1010 or MTH 2300), and ME 1020) before being allowed to complete junior or senior level ME coursework.\*\*\*\*

Third Year	Sem	Grade	(30 credit hours)	Pre-requisites	Fa	Sp	
MTH 2320	4.0	___	___	Calculus III..... (MTH 2310)	★	a	
ME 3600	3.0	___	___	Exp Measure & Instr ..... (EE 2010, EGR 3350, (ME 2120 and Note 9), MTH 2350, and ME 3600Lc)	★	a	
ME 3750	3.0	___	___	Thermodynamics of Materials..... (ME 2700 and Note 9)	★	.	
ME 4720	3.0	___	___	Engineering Polymers .....	★	.	
WSC	___	___	___	Choose one from Element 3b..... (Note 4)	★	a	
ME 3760	3.0	___	___	Diffusion and Kinetics .....	.	★	
ME 4750	2.0	___	___	Materials Characterization .....	.	★	
___	___	___	___	Track Course.....	a	★	
___	___	___	___	Technical Elective .....	a	★	
WSC	___	___	___	Choose one from Element 4..... (Note 4)	a	★	
<b>Credit Hours per Semester in the Model Program .....</b>						<b>16</b>	<b>14</b>

Fourth Year	Sem	Grade	(27 credit hours)		Pre-requisites	Fa	Sp	
___	4910	2.0 iw	___	___	Capstone Design I.....(Department Permission and Note 11)	★	•	
ME	4730	3.0	___	___	Engineering Ceramics..... (ME 2700 and Note 9)	★	•	
ME	4770	3.0	___	___	Mechanical Behavior of Metals..... ((ME 2700 and Note 10), and ME 3120)	★	•	
___	___	3.0	___	___	Track Course..... (Note 6)	★	a	
ME	4620	2.0	___	___	Mechanical Testing Lab.....(ME 2700, ME 3120, and ME 3600)	★	a	
___	4920	2.0 iw	___	___	Capstone Design II..... (ME 4910 or EGR 4910)	•	★	
ME	4700	3.0	___	___	Structure and Properties of Materials II.....((ME 2700 and Note9), MTH 2320, and MTH 2350)	•	★	
___	___	3.0	___	___	Track Course..... (Note 7)	a	★	
ME	4740	3.0	___	___	Materials Selection and Failure Analysis..... (ME 2700, ME 3120, and 4620c)	•	★	
WSC	___	3.0	___	___	Choose one from Element 5..... (Note 4)	a	★	
<b>Credit Hours per Semester in the Model Program .....</b>							<b>13</b>	<b>14</b>

## TOTAL PROGRAM CREDIT HOURS

**120.0**

### Manufacturing Track (Choose 3 of 6)

ISE	2211	3.0	___	___	Statistics for Engineers..... (MTH 2300 or EGR 1010)	★	a
ME	3870	3.0	___	___	Machining..... (ME 2210)	★	•
ME	4121/L	4.0	___	___	Industrial Controls and Automation (EE 4120/L is an equivalent option)..... (ME 1020)	•	★
ME	4180	3.0	___	___	Additive Manufacturing ( <b>available Summer term unless otherwise offered that year</b> ). (ME 2700)	•	•
ME	4860	3.0	___	___	Metal Forming..... (ME 2700, ME 3120 and Note 12)	•	a
ME	4880	3.0	___	___	Powder Processing of Materials..... (ME 2700 and (ME 3310 or ME 3750))	★	•

### General Materials Track

MRE	3.0	___	___	..... (Note 6)	•	★
MRE	3.0	___	___	..... (Note 6)	★	•
MRE	3.0	___	___	..... (Note 6)	•	★

## SUMMER COURSES

Summer course offerings can vary from year to year. Do not make plans based on past history of courses offered. The summer schedule comes out in February each year. It is recommended that you meet with your academic advisor regularly to ensure you have the best possible academic plan.

## NOTES:

- Advising is mandatory in order to assure timely completion of the program.** Please see an advisor as soon as possible to ensure enrollment in the proper courses. **Students are expected to take courses sequentially and in the term listed on the program guide.**
- In the right hand columns, (★) denotes the model schedule for a full-time student, (a) denotes "tentatively available", and (•) denotes "not available"**
- The course number in parentheses denotes a prerequisite course.** A course number followed by "c", such as (PHY ####c), denotes a co-requisite (can or must be taken at the same time). **Pre-requisites can change over time and after a grace period, you may be required to meet the new pre-req requirements. Meeting with your advisor regularly and checking your WSU email will keep you informed of changes.**
- See the Undergraduate Catalog for the Wright State Core requirements
- In addition to ENG 1100 and EGR 3350, all students are required to complete two Integrated Writing "iw" courses from the Wright State Core. These may include the "iw" course EGR 1010. Students must also complete two Multicultural Competence courses "MC" courses from the Wright State Core. Refer to the university catalog for additional information
- (MRE) denotes "Materials Related Elective"** to be selected from an approved list available on the Mechanical and Materials Engineering Department web page or in the department office
- (TE) denotes "Technical Elective"** to be selected from an approved list available on the Mechanical and Materials Engineering Department web page or in the department office. It is acceptable to take an additional MRE course to fulfill the TE requirement. It is possible to use an internship to replace one TE course. Please see your advisor for internship requirements. Courses will not be double counted in the TE and Track course area.
- (MPL Score of 40 or ACT Math 25) and Trigonometry in High School.
- A grade of **"C" or higher** is required in ME 2120 and ME 2700 in order to take follow-up courses.
- A **"C" or higher** grade is required in MTH 2300 or EGR 1010 to take EE 2010.
- Engineering Design, ME 4910 and 4920 or EGR 4910 and 4920 must be taken sequentially. In addition, students must pass the integrated writing component of the Capstone Design courses. Open to seniors during their final year of coursework. Prerequisites include: ME 1040, ME 3600, ME 3760, ME 4620 (pre or co-req), ME 4720, ME 4750, MTH 2320, MTH 2350, and PHY 2410/2410L and all of the pre-reqs for these listed courses. Students who do not successfully complete ME 4920 must start the sequence over with ME 4910. For timely completion of degree, it's important that track and elective courses are taken after completing Capstone pre-requisite courses.
- A grade of **"C or higher"** is required in ME 3120 to take ME 4860 (Metal Forming).