



**WRIGHT STATE  
UNIVERSITY**

# B.S. in Materials Science and Engineering

Program Guide: 2008-2009

Student's Name \_\_\_\_\_ UID# \_\_\_\_\_

First Year	Qtr	Grade	(50 credit hours)	Pre-requisites	Fa	Wi	Sp	Su
CHM 121	3.0	___	___	General Chemistry I.....(CHM 101, MTH 127, CHM 125c)	X	a	•	a
CHM 125	2.0	___	___	General Chemistry Laboratory I.....(CHM 101, MTH 127, CHM 121c)	X	a	•	a
EGR 101	5.0 wi	___	___	Intro Mathematics for Engineering Applications.....(Note 9 or EGR 100/199 and Note 12)	X	a	a	a
EGR 190 d	4.0 wi	___	___	Engineering Fundamentals.....(EGR 190L(2)c, Note 6, Note 8)	X	a	a	•
ME 102 d	3.0	___	___	Engineering Programming With Matlab.....(EGR 101)	a	a	X	•
ENG 101	4.0	___	___	Composition I.....(ENG 101)	X	a	a	a
ENG 102	4.0	___	___	Composition II.....(ENG 101)	a	X	a	a
ME 199 d	3.0	___	___	Engineering Design: Intro.....(Note 8)	a	X	a	•
ME 202	4.0	___	___	Mechanical Drawing, Solid Modeling, and Design.....	a	a	X	a
MTH 229	5.0	___	___	Calculus I.....(MTH 131 or level 7 on math placement test)	a	X	a	a
PHY 240	4.0	___	___	General Physics I.....(EGR 101 or MTH 229, PHY 200c, PHY 240Rc)	a	•	X	•
PHY 200	1.0	___	___	General Physics I Laboratory.....(PHY 240c)	a	•	X	•
GEN ED____	4.0	___	___	Choose one from Area II.....(Note 10)	a	a	X	a
GEN ED____	4.0	___	___	Choose one from Area III.....(Note 10)	a	X	a	a
<b>Credit Hours Per Quarter in the Model Program .....</b>					<b>18</b>	<b>16</b>	<b>16</b>	<b>0</b>

Second Year	Qtr	Grade	(51 credit hours)	Pre-requisites	Fa	Wi	Sp	Su
ME 212 d	4.0	___	___	Statics.....(EGR 101 or MTH 231, PHY 240)	X	a	a	a
ME 213 d	4.0	___	___	Dynamics.....(ME 102, ME 212 and Note 12)	a	X	a	a
ME 313 d	4.0	___	___	Strength of Materials.....(ME 102, ME 212 and Note 12)	a	a	X	•
ME 370	4.0	___	___	Materials Engineering Science: Intro.....(CHM 121, PHY 244)	a	a	X	•
MTH 230	5.0	___	___	Calculus II.....(MTH 229)	X	a	a	a
MTH 231	5.0	___	___	Calculus III.....(MTH 230)	a	X	a	a
MTH 235	5.0	___	___	Differential Equations with Matrix Algebra.....(MTH 231)	a	a	X	a
EE 301 d	4.0	___	___	Circuit Analysis I.....(EGR 101 or MTH 230, PHY 242, EE302c)	a	a	X	a
EE 302 d	1.0	___	___	Circuit Analysis I Laboratory.....(EE 301c)	a	a	X	a
PHY 242	4.0	___	___	General Physics II.....(MTH 230c, PHY 240, PHY 202c, PHY 242Rc)	X	a	•	•
PHY 202	1.0	___	___	General Physics II Laboratory.....(PHY 242c)	X	a	•	•
PHY 244	5.0	___	___	General Physics III.....(MTH 230, PHY 240, PHY 204c, PHY 244Rc)	•	X	a	•
PHY 204	1.0 wi	___	___	General Physics III Laboratory.....(PHY 244c)	•	X	a	•
GEN ED____	4.0	___	___	Choose one from Area II.....(Note 10)	X	a	a	a
<b>Credit Hours Per Quarter in the Model Program .....</b>					<b>18</b>	<b>15</b>	<b>18</b>	<b>0</b>

Third Year	Qtr	Grade	(51 credit hours)	Pre-requisites	Fa	Wi	Sp	Su
MTH 232	5.0	___	___	Calculus IV.....(MTH 231)	a	X	a	a
ME 314	4.0	___	___	Experimental Measurements and Instr.....(EE 301, ME 199, ME 213, ME 314Lc, MTH 235)	X	a	a	•
ME 315	4.0	___	___	Thermodynamics I.....(EGR 101 or MTH 231, PHY 240)	X	a	a	a
ME 371 d	3.0	___	___	Structure & Properties of Engineering Materials.....(ME 313, ME 370)	X	a	a	•
ME 375 d	4.0	___	___	Thermodynamics of Materials.....(ME 315, ME 371c)	•	X	•	•
ME 376	3.0	___	___	Physical Metallurgy.....(ME 375)	•	•	X	•
ME 496 d	2.0	___	___	Engineering Mechanics Lab.....(ME 313, ME 314, ME 371c)	•	X	•	•
ME 497 d	2.0	___	___	Materials Lab I.....(ME 370)	X	•	•	•
ME 470 d	4.0	___	___	Failure Analysis.....(ME 313, ME 371)	•	X	•	•
ME 472	4.0	___	___	Structure & Properties of Engineering Polymers.....(ME 370)	•	X	•	•
ME 479 d	4.0	___	___	Materials Corrosion.....(ME 315, ME 371)	•	•	X	•
_____	4.0	___	___	Materials Related Elective.....(Note 7)	a	a	X	•
GEN ED____	4.0	___	___	Choose one from Area III.....(Note 10)	a	a	X	a
GEN ED____	4.0	___	___	Choose one from Area IV.....(Note 10)	X	a	a	a
<b>Credit Hours Per Quarter in the Model Program .....</b>					<b>17</b>	<b>19</b>	<b>15</b>	<b>0</b>

Fourth Year	Qtr	Grade	(45 credit hours)	Pre-requisites	Fa	Wi	Sp	Su	
ME 477	d	4.0	_____	_____	Mechanical Behavior of Materials.....(ME 313, ME 371)	X	•	•	•
ME 480		4.0	_____	_____	X-Ray Methods in Materials Science.....(ME 376)	X	•	•	•
ME 483		3.0	_____	_____	Introduction to Ceramics.....(ME 375)	•	X	•	•
ME ___	d	4.0	_____	_____	Processing Course.....(Note 11)	X	•	a	•
ME ___	d	4.0	_____	_____	Processing Course.....(Note 11)	a	a	X	•
ME 492	d	4.0	wi	_____	Materials Engineering Design.....(ME 376, ME 496)	X	a	•	•
ME 493	d	4.0	wi	_____	Materials Engineering Design.....(ME 492)	•	X	a	•
_____	_____	3.0	_____	_____	Materials Related Elective.....(Note 7)	a	a	X	a
_____	_____	3.0	_____	_____	Materials Related Elective.....(Note 7)	a	a	X	a
_____	_____	4.0	_____	_____	Materials Related Elective.....(Note 7)	a	X	a	a
GEN ED	_____	4.0	_____	_____	Choose one from Area II, III, or IV.....(Note 10)	a	X	a	a
GEN ED	_____	4.0	_____	_____	Choose one from Area II, III, or IV.....(Note 10)	a	a	X	a
<b>Credit Hours Per Quarter in the Model Program .....</b>						<b>16</b>	<b>15</b>	<b>14</b>	<b>0</b>

**TOTAL PROGRAM CREDIT HOURS**

**197.0**

**NOTES:**

1. **Quarterly advising is mandatory in order to assure timely completion of the program.** Please see a department advisor as soon as possible to ensure enrollment in the proper courses.
2. **In the right hand columns, (X)** denotes the typical schedule for a full-time student, (a) denotes "tentatively available", and (•) denotes "not available".
3. **The course number in parentheses denotes a prerequisite course.** Such a number followed by "c", such as (PHY ###c), denotes a co-requisite (taken at the same time).
4. **Courses with "d" designations contain design,** the process of devising a system, component, or process to meet some desired need. The course work provides experience in open-ended problem solving by combining decision making and creative thought with basic and engineering sciences. The design experience is incorporated across a variety of subject areas and increases in amount and complexity.
5. Students admitted or readmitted Fall 1996 or later are subject to **Writing Across the Curriculum (WAC)** regulations. Refer to the university catalog for additional information. WAC courses are indicated by "wi." In addition to ENG 101 and 102, 4 general education courses must be Writing Intensive. These may include the "wi" courses EGR 190 and PHY 204.
6. **Substitution:** ISE 210 is an allowable substitution for EGR 190.
7. **(MR) denotes "Materials Related Elective," 14 hours minimum,** to be selected from approved list on the Mechanical and Materials Engineering Department web page at <http://www.engineering.wright.edu/mme>. A list of courses approved at the time of this printing is below and is subject to change.
8. Open to Freshman/Sophomore students only. Junior/Senior students replace with additional Materials Related Electives.
9. MPL 5 or MTH 131, Trigonometry.
10. See the Undergraduate Catalog for General Education requirements.
11. **Processing Courses include ME 485, 486, 487, 488, and 489.** At least two are required. Those taken beyond these two counts toward the MR requirement.
12. A grade of **"C" or higher** is required in the following courses: EGR 100/199, ME 212, ME 315 in order to satisfy the designated pre-requisites.

<b>Approved List of Materials Related Electives (MR)</b>								Fa	Wi	Sp	Su
ME 317	d	4.0	_____	_____	Fluid Dynamics.....(ME 213, ME 315)	•	a	a	•		
ME 318	d	4.0	_____	_____	Heat Transfer.....(ME 317, MTH 235)	•	a	a	•		
ME 412	d	4.0	_____	_____	Finite Element Analysis.....(ME 313, ME 412Lc, MTH 235)	•	a	•	a		
ME 414	d	4.0	_____	_____	Mechanical Design I.....(ME 313)	a	•	a	•		
ME 471	d	4.0	_____	_____	Non Destructive Evaluation.....(ME 376, ME 477)	a	•	•	•		
ME 481	d	4.0	_____	_____	Materials Characterization.....(ME 371)	•	a	•	•		
ME 482	d	4.0	_____	_____	Transmission Electron Microscopy.....(ME 371)	•	•	a	•		
ME 485	d	4.0	_____	_____	Solidification Processing.....(ME 375)	a	•	•	•		
ME 486	d	4.0	_____	_____	Deformation Processing.....(ME 313, ME 371)	•	•	a	•		
ME 487	d	4.0	_____	_____	Machining.....(ME 371)	a	•	•	•		
ME 488	d	4.0	_____	_____	Powder Processing of Materials.....(ME 375)	•	•	a	•		
ME 489	d	4.0	_____	_____	Engineering Plastics.....(ME 472)	a	•	•	•		
ME 499		1-4.0	_____	_____	Special Problems.....	a	a	a	a		