



B.S. in Materials Science and Engineering

Program Guide: 2007-2008

Student's Name _____ UID# _____

First Year	Qtr	Grade	(51 credit hours)	Pre/Co-requisites	Fa	Wi	Sp	Su
CHM 121	5.0	___	___	General Chemistry 1(CHM 125c)	X	a	•	•
CHM 125	0.0	___	___	General Chemistry Laboratory 1.....(CHM 121c)	X	a	•	•
EGR 101	5.0	___	___	Introductory Mathematics for Engineering Applications.....(Note 8, Note 9)	X	a	a	a
EGR 190 d	4.0 wi	___	___	Engineering Fundamentals.....(Note 6, Note 8)	X	a	a	•
EGR 153 d	4.0	___	___	FORTTRAN Programming.....(EGR 101 or MTH 229c, Note 6, Note 9)	a	a	X	•
ENG 101	4.0	___	___	Composition I.....	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)	a	•	X	a
PHY 200	1.0	___	___	General Physics I Laboratory.....(EGR 101 or MTH 229, PHY 240c)	a	•	X	a
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
Credit Hours Per Quarter in the Model Program					18	16	17	0

Second Year	Qtr	Grade	(51 credit hours)	Pre/Co-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.....(EGR 153 OR CEG 220 OR EGR 102, ME 212)	a	X	a	a
ME 313 d	4.0	___	___	Strength of Materials.....(EGR 153 OR CEG 220 OR EGR 102, ME 212)	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.....(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 230 or EGR 101, PHY 240, PHY 202c)	X	a	•	a
PHY 202	1.0	___	___	General Physics II Laboratory.....(PHY 242c)	X	a	•	a
PHY 244	5.0	___	___	General Physics III.....(MTH 230 or EGR 101, PHY 242, PHY 204c)	•	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
Credit Hours Per Quarter in the Model Program					18	15	18	0

Third Year	Qtr	Grade	(51 credit hours)	Pre/Co-requisites	Fa	Wi	Sp	Su
MTH 232	5.0	___	___	Calculus IV.....(MTH 231)	a	X	a	a
ME 314	4.0	___	___	Experimental Measurements and Instrumentation.....(EE 301, ME 213, MTH 235)	X	a	a	•
ME 315	4.0	___	___	Thermodynamics I.....(MTH 232, PHY 244)	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 371b)	•	X	•	•
ME 376	3.0	___	___	Physical Metallurgy.....(ME 375)	•	•	X	•
ME 496 d	2.0	___	___	Engineering Mechanics Lab.....(ME 313, ME 314, ME 371b)	•	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 II, III, or IV.....(Note 10)	X	a	a	a
Credit Hours Per Quarter in the Model Program					17	19	15	0

Fourth Year	Qtr	Grade	(45 credit hours)	Pre/Co-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)	a	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)	X	a	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	
Credit Hours Per Quarter in the Model Program						16	15	14	0	

TOTAL PROGRAM CREDIT HOURS

198.0

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) and a number followed by "b", denotes a pre/co-requisite (must be taken before or concurrently).
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:** CEG 220 is an allowable substitution for EGR 153. 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 and MTH 131 or Trigonometry in High School.
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.

Approved List of Materials Related Electives (MR)						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)	a	a	•	•
ME 412	d	4.0	—	—	Finite Element Analysis (ME 313, 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 484	d	4.0	—	—	Physical Ceramics (ME 483)	•	•	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
PHY 400		3.0	—	—	Properties of Semiconductor Materials..... (PHY 244)	•	a	•	•