



WRIGHT STATE  
UNIVERSITY

# B.S. in Materials Science and Engineering

Program Guide: 2014-2015

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

| First Year   | Sem    | Grade | (31 credit hours) | Pre-requisites  | Fa        | Sp        | Su       |
|--|--------|-------|-------------------|---|-----------|-----------|----------|
| CHM 1210   | 3.0    | ___   | ___               | General Chemistry I...((CHM 1010 or H.S. Chem), (MTH 1280 or MPL 04 or 30), and CHM 1210L/Rc) | ★         | a         | a        |
| CHM 1210L  | 2.0    | ___   | ___               | General Chemistry Laboratory I .....(CHM 1210c)   | ★         | a         | a        |
| EGR 1010   | 4.0 iw | ___   | ___               | Intro Mathematics for Engineering Appl .....(MTH 1350 or Note 9)                              | ★         | a         | a        |
| ENG 1100   | 3.0    | ___   | ___               | Composition I.....(Level 86 on English placement test or minimum 23 ACT English)              | ★         | a         | a        |
| ME 1040  | 4.0    | ___   | ___               | Engineering Design and Solid Modeling .....   | ★         | a         | a        |
| ME 1020  | 3.0    | ___   | ___               | Engineering Programming With MATLAB.....(EGR 1010)  | a         | ★         | a        |
| MTH 2300   | 4.0    | ___   | ___               | Calculus I .....(MTH 1350 or MPL 07 or 50)  | a         | ★         | a        |
| PHY 2400   | 4.0    | ___   | ___               | General Physics I.....((EGR 1010 or MTH 2300), PHY 2400Lc, and PHY 2400Rc)                    | a         | ★         | a        |
| PHY 2400L  | 1.0    | ___   | ___               | General Physics I Laboratory .....(PHY 2400c)   | a         | ★         | a        |
| WSC  | ___    | 3.0   | ___               | Choose one from Element 5..... (Note 4)   | a         | ★         | a        |
| <b>Credit Hours per Semester in the Model Program.....</b> |        |       |                   |   | <b>16</b> | <b>15</b> | <b>0</b> |

| Second Year   | Sem | Grade | (33 credit hours) | Pre-requisites  | Fa        | Sp        | Su       |
|---|-----|-------|-------------------|---|-----------|-----------|----------|
| ME 2120   | 3.0 | ___   | ___               | Statics.....((EGR 1010 or MTH 2310), and PHY 2400)  | ★         | a         | a        |
| ME 2600   | 1.0 | ___   | ___               | Metallography ( <i>pending</i> )..... (ME 2700 <i>pre</i> or <i>co-req</i> )                | ★         | a         | •        |
| ME 2700   | 3.0 | ___   | ___               | Structure and Properties of Materials I..... (CHM 1210 and PHY 2400)                        | ★         | a         | •        |
| MTH 2310  | 4.0 | ___   | ___               | Calculus II.....(MTH 2300)  | ★         | a         | a        |
| PHY 2410  | 4.0 | ___   | ___               | General Physics II.....(MTH 2310c, PHY 2400, PHY 2410Lc, and PHY 2410Rc)                    | ★         | a         | a        |
| PHY 2410L   | 1.0 | ___   | ___               | General Physics II Laboratory.....(PHY 2410c)   | ★         | a         | a        |
| EE 2010   | 3.0 | ___   | ___               | Circuit Analysis I.....(((EGR 1010 or MTH 2300) and Note 10), and EE 2010Lc)                | a         | ★         | a        |
| EE 2010L  | 1.0 | ___   | ___               | Circuit Analysis I Laboratory.....(EE 2010c)  | a         | ★         | a        |
| EGR 3350  | 3.0 | ___   | ___               | Technical Communication for Engineers and Scientists.....(ENG 1100 and full major standing) | a         | ★         | a        |
| ME 3120   | 3.0 | ___   | ___               | Mechanics of Materials .....(ME 1020 and (ME 2120 and Note 10))                             | a         | ★         | •        |
| MTH 2350  | 4.0 | ___   | ___               | Differential Equations with Matrix Algebra..... (MTH 2310)                                  | a         | ★         | a        |
| WSC   | ___ | 3.0   | ___               | Choose one from Element 3a..... (Note 4)  | a         | ★         | a        |
| <b>Credit Hours per Semester in the Model Program .....</b> |     |       |                   |   | <b>16</b> | <b>17</b> | <b>0</b> |

| Third Year  | Sem | Grade | (32 credit hours) | Pre-requisites  | Fa        | Sp        | Su       |
|---|-----|-------|-------------------|---|-----------|-----------|----------|
| MTH 2320  | 4.0 | ___   | ___               | Calculus III..... (MTH 2310)  | ★         | a         | a        |
| ME 3600   | 3.0 | ___   | ___               | Exp Measure & Instr ... (EE 2010, EGR 3350, (ME 2120 and Note 10), MTH 2350, and ME 3600Lc) | ★         | a         | •        |
| ME 3750   | 3.0 | ___   | ___               | Thermodynamics of Materials.....(ME 2700 and Note 10)                                       | ★         | •         | •        |
| ME 4750   | 4.0 | ___   | ___               | Materials Characterization ..... (ME 2600 and (ME 2700 and Note 10))                        | ★         | •         | •        |
| WSC   | ___ | 3.0   | ___               | Choose one from Element 3b..... (Note 4)  | ★         | a         | a        |
| ME 3760   | 3.0 | ___   | ___               | Diffusion and Kinetics .....(ME 3750)   | •         | ★         | •        |
| ME 4720   | 3.0 | ___   | ___               | Engineering Polymers .....(ME 2700 and Note 10)   | •         | ★         | •        |
| ___   | ___ | 3.0   | ___               | Materials Related Elective ..... (Note 6)   | a         | ★         | •        |
| ___   | ___ | 3.0   | ___               | Technical Elective ..... (Note 7)   | a         | ★         | a        |
| WSC   | ___ | 3.0   | ___               | Choose one from Element 4..... (Note 4)   | a         | ★         | a        |
| <b>Credit Hours per Semester in the Model Program .....</b> |     |       |                   |   | <b>17</b> | <b>15</b> | <b>0</b> |

| Fourth Year   | Sem   | Grade  | (29 credit hours) | Pre-requisites | Fa  | Sp        | Su        |          |
|---|-------|--------|-------------------|----------------|---|-----------|-----------|----------|
| _____   | 4910  | 3.0 iw | _____             | _____          | Capstone Design I.....(Department Permission and Note 11)                                   | ★         | •         | •        |
| ME  | 4730  | 3.0    | _____             | _____          | Engineering Ceramics.....(ME 2700 and Note 10)  | ★         | •         | •        |
| ME  | 4770  | 3.0    | _____             | _____          | Mechanical Behavior of Metals..... ((ME 2700 and Note 10), and ME 3120)                     | ★         | •         | •        |
| _____   | _____ | 3.0    | _____             | _____          | Materials Related Elective..... (Note 6)  | ★         | a         | •        |
| _____   | _____ | 3.0    | _____             | _____          | Technical Elective..... (Note 7)  | ★         | a         | a        |
| _____   | 4920  | 3.0 iw | _____             | _____          | Capstone Design II..... (ME 4910 or EGR 4910)   | •         | ★         | •        |
| ME  | 4700  | 3.0    | _____             | _____          | Structure and Properties of Materials II.....((ME 2700 and Note10), MTH 2320, and MTH 2350) | •         | ★         | •        |
| ME  | 4620  | 2.0    | _____             | _____          | Mechanical Testing Lab ( <i>pending</i> ).....(ME 2700, ME 3120, and ME 3600)               | •         | ★         | •        |
| 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         | ★         | a        |
| <b>Credit Hours per Semester in the Model Program .....</b> |       |        |                   |                |   | <b>15</b> | <b>14</b> | <b>0</b> |

**TOTAL PROGRAM CREDIT HOURS**

**125.0**

**NOTES:**

- 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. The request for registration form is located on the Mechanical and Materials Engineering Department web page at <http://www.engineering.wright.edu/mme/current-students.shtml>
- 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)
- 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," 6 hours minimum,** 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," 6 hours minimum,** 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.
- Students must meet full major requirements (24+ credit hours completed, 2.25 cumulative grade point average, C or higher in ENG 1100, (PHY 2400/2400L or CHM 1210/1210L), (EGR 1010 or MTH 2300), and ME 1020 before being allowed to complete junior or senior level coursework
- (MPL 5 or 40 or ACT Math 25) and Trigonometry in High School
- A grade of "C" or higher is required in the following courses: EGR 1010 or MTH 2300 for EE 2010, ME 2120 and ME 2700 in order to satisfy the designated pre-requisites
- Engineering Design, ME 4910 and 4920 or EGR 4910 and 4920 must be taken sequentially (Fall & Spring). In addition, students must pass the integrated writing component of the Engineering Design courses. Open to juniors and seniors who are within 1.5 years of graduating. Minimum prerequisites include: ME 1040, ME 4620, EGR 3350, MTH 2320, PHY 2410, and EE 2010/2010L