# Bachelor of Science in Electrical Engineering

## Program Guide

**2016-2017**

<table>
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<tr>
<th>Student’s Name</th>
<th>UID#</th>
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## First Year

<table>
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<tr>
<th>Sem</th>
<th>Grade</th>
<th>(33 annual credit hours)</th>
<th>Pre-requisites</th>
<th>Fa</th>
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<tbody>
<tr>
<td>CHM 1210</td>
<td>3.0</td>
<td>General Chemistry I .............. CHM 1010 Min Grade of D &amp; MPL 30, CHM1210Lc; CHM1210Rc</td>
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<tr>
<td>CHM 1210L</td>
<td>2.0</td>
<td>General Chemistry I Lab...........CHM 1010 Min Grade of D &amp; MPL 30, CHM1210c; CHM1210Rc</td>
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<td>CHM 1210R</td>
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<td>General Chemistry I Recitation....CHM 1010 Min Grade of D &amp; MPL 30, CHM1210c; CHM1210Lc</td>
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<tr>
<td>ENG</td>
<td>1100</td>
<td>Academic Writing and Reading..........................ACT 23 or SAT Verbal 530 or WPL 40</td>
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<tr>
<td>EE</td>
<td>1000</td>
<td>Intro to Electrical Engineering.................................</td>
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<td>MTH 2300</td>
<td>4.0</td>
<td>Calculus I..................................................MTH 1350 or MPL 50</td>
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<td>___</td>
<td>3.0</td>
<td>Social Sciences (E-5).................................Note 7</td>
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<tr>
<td>EE</td>
<td>2000</td>
<td>Digital Design with HDL ..................MPL 40 or MTH 1280 with a minimum grade of C</td>
<td>a ★ •</td>
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<tr>
<td>EE</td>
<td>2000L</td>
<td>Digital Design with HDL Laboratory....(MPL 40 or MTH 1280 with a minimum grade of C), EE 2000c</td>
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<td>CEG</td>
<td>2170</td>
<td>Introduction to C Programming..........................MTH 1280 or MPL 40</td>
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<tr>
<td>PHY</td>
<td>2400</td>
<td>General Physics I............(C or higher in EGR 1010 or MTH 2300), PHY 2400Lc, and PHY 2400Rc</td>
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<td>PHY</td>
<td>2400L</td>
<td>General Physics I Laboratory..........................PHY 2400c</td>
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<td>MTH</td>
<td>2310</td>
<td>Calculus II ..................................................MTH 2300</td>
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**Credit Hours per Semester in the Model Program**: 16 17 0

## Second Year

<table>
<thead>
<tr>
<th>Sem</th>
<th>Grade</th>
<th>(33 annual credit hours)</th>
<th>Pre-requisites</th>
<th>Fa</th>
<th>Sp</th>
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<tbody>
<tr>
<td>PHY</td>
<td>2410</td>
<td>General Physics II ...........MTH 2310c, PHY 2400, PHY 2410Lc, and PHY 2410Rc</td>
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<tr>
<td>PHY</td>
<td>2410L</td>
<td>General Physics II Laboratory ..................................PHY 2410c</td>
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<tr>
<td>EE</td>
<td>2010</td>
<td>Circuit Analysis I ...(C or better in ENG 1100 and MTH 2310) and PHY 2410/Lc</td>
<td>a ★ •</td>
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<td>EE</td>
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<tr>
<td>MTH</td>
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<td>Calculus III ..................................................MTH 2310</td>
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<td>___</td>
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<td>Arts/Humanities (E-4).................................Note 7</td>
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<tr>
<td>EE</td>
<td>3210</td>
<td>Linear Systems I....(C or higher in EE 2010/L), (C or higher in CEG 2170), MTH 2310</td>
<td>a ★ •</td>
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<tr>
<td>EE</td>
<td>3310</td>
<td>Electronic Devices and Circuits..........................MTH 2300, (C or higher in EE 2010)</td>
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<tr>
<td>EE</td>
<td>3310L</td>
<td>Electronic Devices and Circuits Laboratory............EE 3310c</td>
<td>a ★ a</td>
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<td>___</td>
<td>3.0</td>
<td>Global Traditions (E-3).................................Note 7</td>
<td>a ★ a</td>
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<tr>
<td>EGR</td>
<td>3350</td>
<td>Technical Communication for Engineers and Scientists.........ENG 1100 &amp; full major standing</td>
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<tr>
<td>ENG</td>
<td>2140</td>
<td>Research, Technical Writing &amp; Presentation for Scientists &amp; Engineers... ENG 1100 (Min grade of C)</td>
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<td>MTH</td>
<td>2350</td>
<td>Differential Equations with Matrix Algebra..........................MTH 2310</td>
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**Credit Hours per Semester in the Model Program**: 16 17 0

## Third Year

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<th>Sem</th>
<th>Grade</th>
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<th>Pre-requisites</th>
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<tr>
<td>EE</td>
<td>3450</td>
<td>Introduction to Electromagnetics..........................(C or higher in EE2010/L), PHY 2410/L, MTH 2320</td>
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<td>EE</td>
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<td>Intro to Electromagnetics Laboratory.................................EE 3450c</td>
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<td>EE</td>
<td>4130</td>
<td>Continuous Control Systems .....................................(C or higher in EE 3210 or ME 3210), MTH 2310</td>
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<tr>
<td>EE</td>
<td>4130L</td>
<td>Continuous Control Systems Laboratory.....................EE 4130c</td>
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<tr>
<td>EE</td>
<td>4000</td>
<td>Linear Systems II...........................................(C or higher in EE 3210), MTH 2310</td>
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<tr>
<td>EE</td>
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<td>Digital Communication .......................................EE 4000</td>
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<tr>
<td>EE</td>
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<tr>
<td>EE</td>
<td>4620</td>
<td>Digital Integrated Circuit Design.......................(C or higher in EE 2000/L), (C or higher in EE 3210 or CEG 3320)</td>
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<td>EE</td>
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<td>Digital Integrated Circuit Design Laboratory ..................EE 4620c</td>
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<td>EE</td>
<td>3260</td>
<td>Random Signals and Noise........................................(C or higher in EE 4000), MTH 2350, EE23210</td>
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**Credit Hours per Semester in the Model Program**: 14 15 0

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Revised November 15, 2017
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<th>Fourth Year</th>
<th>Sem</th>
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<tr>
<td>EE 4910</td>
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<td>Senior Design Project I .......................................................... EGR 3350 and ALL EE foundation hours</td>
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<td>Global Traditions/History (E-3) .................................................. Note 7</td>
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<td>Social Sciences (E-5) .............................................................. Note 7</td>
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Credit Hours per Semester in the Model Program .......................................................... 12 13 0

TOTAL PROGRAM CREDIT HOURS

EE Focus Area (Complete one of the areas below with a minimum of 7 hours)

Electronic Systems Focus Area

| EE 4100     | 3.0 |       | Micro/Nano fab Engineering ...................................................... EE 3310/L, PHY 2400/L | ★ • a |     |     |     |
| EE 4440/L   | 4.0 |       | Electronic Integrated Sys ......................................................... EE 3210, EE 3310/L | ★ • • |     |     |     |

Control Systems Focus Area

| EE 4170/L   | 4.0 |       | Digital Control Systems .......................................................... EE 4130/L | ★ • • |     |     |     |

And ONE of the following:

| EE 4190/L   | 4.0 |       | Intelligent Control Systems ...................................................... EE 4130/L | ★ • • |     |     |     |
| EE 4560/L   | 4.0 |       | Intro to Robotics ................................................................. MTH 2350 | ★ • • |     |     |     |
| EE 4120/L   | 4.0 |       | Industrial Controls ............................................................... EE 2000/L | ★ a a |     |     |     |

Microwave Engineering Focus Area

| EE 4420/L   | 4.0 |       | Microwave Engineering I ........................................................ EE 3450/L | ★ • • |     |     |     |

And ONE of the following:

| EE 4460/L   | 4.0 |       | Microwave Engineering II ......................................................... EE 4420/L | ★ • • |     |     |     |
| EE 4470/L   | 4.0 |       | Antenna Theory and Design ...................................................... EE 4420/L | ★ • • |     |     |     |

Signal Processing and Wireless Focus Area

| EE 4730/L   | 4.0 |       | Wireless Communication ......................................................... EE 4210/L, EE 3260 | ★ • • |     |     |     |
| EE 4360     | 3.0 |       | Digital Signal Processing ........................................................ EE 4000 | ★ • • |     |     |     |

VLSI and Computer EGR:

| EE 4540/L   | 4.0 |       | VLSI Design ................................................................. EE 2000/L | ★ a |     |     |     |

And ONE of the following:

| EE 4100     | 3.0 |       | Micro/Nano fab Engineering ...................................................... EE 3310/L, PHY 2400/L | ★ • a |     |     |     |
| CEG 4330    | 3.0 |       | Microprocessor- Embedded Sys ................................................... CEG 3320 or (EE 2000/L, CEG 2170) | ★ • a |     |     |     |
| EE 4360     | 3.0 |       | Digital Signal Processing ...................................................... EE 4000 | ★ a |     |     |     |
| EE 4730/L   | 4.0 |       | Wireless Communication ......................................................... EE 4210/L, EE 3260 | ★ a |     |     |     |

Software:

| CEG 3310/L  | 4.0 |       | Computer Organization.......................................................... CEG 2170, EE 2000/L | ★ a |     |     |     |
| CS 3100     | 3.0 |       | Data Structures and Algorithms ............................................ (C or higher CS 1181/L, CEG 3310/L), CEG 2350/L, MTH 2570 | ★ a |     |     |     |

NOTES:
1. 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. Students must meet all major requirements (24+ credit hours completed, 2.25 cumulative grade point average, C or higher in ENG 1100, PHY 2400/2400L, CEG 2170, and MTH 2300 before being allowed to complete junior or senior level coursework.
3. In the right hand column, (★) denotes the model schedule for a full-time student, (a) denotes “tentatively available”, and (+) denotes “not available”
4. The course(s) on the right side of the guide denote a prerequisite or a co-requisite course. A course number followed by “c”, such as (PHY ####c), denotes a co-requisite (can or must be taken at the same time).
5. See the Undergraduate Catalog for the Wright State Core requirements.
6. In addition to ENG 1100 and EGR 3350 or ENG 2140, students are required to complete two Integrated Writing “lw” courses from the Wright State Core. This may include the “lw” course EGR 1010.
7. Students must also complete two Multicultural Competence courses “MC” courses from the Wright State Core. Refer to the university catalog for additional information.
8. At least one focus area must be completed in its entirety. Additional courses outside the focus area may be taken as technical electives.
9. Technical electives are 2000+ level courses from colleges of Engineering, Science and Math, or Business. Science courses should be natural or physical science courses. Students may take one of the following 1000-level courses: EGR1010, MTH1350, EGR1980, CS1160, CS1180, or MEC1020. Redundant coursework (i.e. ISE 2211, MS 2940, STT 3630, STT 2640) will not be accepted. In addition, technical electives may include 1 semester hour of internship credit (EE4810, EE4840, or EE4830).
10. Students without high school chemistry will be required to take CHM 1010.
11. Senior Design I (EE 4910) requires completion of ALL EE core coursework.