

# COMPUTER ENGINEERING

## Curriculum Guide effective Fall 2015 ~ North Dakota State University

STUDENT \_\_\_\_\_

ID # \_\_\_\_\_

ADVISOR \_\_\_\_\_

|                       | Fall                         |                          |           |       |        | Spring                       |                              |            |       |        |
|-----------------------|------------------------------|--------------------------|-----------|-------|--------|------------------------------|------------------------------|------------|-------|--------|
|                       | Course                       |                          | Crs       | Grade | Gen Ed | Course                       |                              | Crs        | Grade | Gen Ed |
| Freshman (<27 crs)    | <b>CHEM 121</b>              | General Chemistry I      | 3         |       | S      | <b>ECE 111<sup>✓</sup></b>   | Intro to ECE                 | 3          |       |        |
|                       | Wellness Elec                |                          | 2         |       | W      | <b>ENGL 120</b>              | College Composition II       | 3          |       | C      |
|                       | <b>ECE 173</b>               | Intro to Computing       | 3         |       |        | <b>MATH 129</b>              | Basic Linear Algebra         | 2          |       |        |
|                       | <b>ENGL 110</b>              | College Composition I    | 3         |       | C      | <b>MATH 166</b>              | Calculus II                  | 4          |       |        |
|                       | <b>MATH 165</b>              | Calculus I               | 4         |       | R      | <b>PHYS 251</b>              | Univ Physics I               | 4          |       | S      |
|                       | <b>UNIV 189</b>              | Skills for Success       | 1         |       | F      |                              |                              |            |       |        |
| Sophomore (27-59 crs) |                              |                          | <b>16</b> |       |        |                              |                              | <b>16</b>  |       |        |
|                       | <b>EE 206</b>                | Circuit Analysis I/lab   | 4         |       |        | <b>COMM 110</b>              | Fund Public Speaking         | 3          |       | C      |
|                       | <b>MATH 265</b>              | Calculus III (w/vectors) | 4         |       |        | <b>ECE 320</b>               | Electronics I/lab            | 3          |       |        |
|                       | <b>CSCI 222</b>              | Discrete Math            | 3         |       |        | <b>MATH 266</b>              | Intro Differential Equations | 3          |       |        |
|                       | <b>ECE 275</b>               | Digital Design/lab       | 4         |       |        | <b>ECE 374</b>               | Computer Org/lab             | 4          |       |        |
|                       | Gen Ed Elective              | Science Lab              | 1         |       | L      | <b>CSCI 161</b>              | Computer Science II          | 4          |       |        |
| Junior (60 - 89 crs)  |                              |                          | <b>16</b> |       |        |                              |                              | <b>17</b>  |       |        |
|                       | <b>CSCI 413</b>              | Software Engineering     | 3         |       |        | <b>ECE 341</b>               | Random Processes             | 3          |       |        |
|                       | <b>ECE 343</b>               | Signals & Systems        | 4         |       |        | <b>ECE 401</b>               | Design I (capstone)          | 1          |       |        |
|                       | <b>CSCI 474</b>              | Operating Syst. Concepts | 3         |       |        | <b>ECE 376</b>               | Embedded Systems/lab         | 4          |       |        |
|                       | <b>ENGR 402</b>              | Engr Ethics/Social Resp  | 1         |       |        | <b>CSCI 459</b>              | Computer Networks            | 3          |       |        |
|                       | <b>ECE 474</b>               | Computer Architecture    | 3         |       |        | <b>ECE 475</b>               | Adv. Digital Design/lab      | 4          |       |        |
| Senior (90 + crs)     |                              |                          | <b>14</b> |       |        |                              |                              | <b>15</b>  |       |        |
|                       | <b>ECE 403</b>               | Design II (capstone)     | 2         |       |        | <b>ECE 405</b>               | Design III (capstone)        | 3          |       |        |
|                       | ENGL                         | Upper Level Writing*     | 3         |       | C      | ECE Elective                 | or CSCI 467: Alg. Analysis   | 3          |       |        |
|                       | ECE Elective                 |                          | 3         |       |        | Gen Ed Elective <sup>†</sup> |                              | 3          |       | A or B |
|                       | Tech Elective                |                          | 3         |       |        | Gen Ed Elective              |                              | 3          |       | A or B |
|                       | Gen Ed Elective <sup>✓</sup> |                          | 3         |       | A or B | Tech Elective                |                              | 3          |       |        |
|                       | Gen Ed Elective <sup>†</sup> |                          | 3         |       | A or B |                              |                              |            |       |        |
|                       |                              |                          | <b>17</b> |       |        |                              |                              | <b>15</b>  |       |        |
|                       |                              |                          |           |       |        | <b>TOTAL CREDITS</b>         |                              | <b>126</b> |       |        |

**ECE Elective:** any ECE 4xx course<sup>2</sup>, excluding 494 and 496

**Tech Elective:** any didactic 4xx course from ECE or CSCI<sup>2</sup>, or any of the following: CSCI 336, CSCI 366, CSCI 372, ECE 311, ECE 321, ECE 351, ECE 494, ECE 496 (max 3 hours), ENGR 310, PHYS 252, IME 440, IME 456, IME 460, IME 470

<sup>✓</sup>Students must take ECE 111 prior to enrolling in ECE courses listed above in the Junior or Senior years; otherwise, students must take an additional ECE Elective in lieu of ECE 111

| General Education Electives                                      |                                  |     |       |
|------------------------------------------------------------------|----------------------------------|-----|-------|
| Approved courses listed in the registration schedule centerfold. |                                  |     |       |
| Gen Ed                                                           | Course                           | Crs | Grade |
| A                                                                |                                  | 3   |       |
| A                                                                |                                  | 3   |       |
| B                                                                |                                  | 3   |       |
| B                                                                |                                  | 3   |       |
| D ■                                                              | (double-count with A or B above) |     |       |
| G ●                                                              | (double-count with A or B above) |     |       |
| L                                                                |                                  | 1   |       |
| W                                                                |                                  | 2   |       |

### General Education Categories:

A - Humanities/Fine Arts  
B - Social/Behavioral Sciences  
C - Communication  
D - Cultural Diversity ■  
F - First-Year Experience  
G - Global Perspectives ●  
L - Co-requisite Lab  
R - Quantitative Reasoning  
S - Science & Technology  
W - Wellness

<sup>\*</sup>Suggested to take either ECON 105, ECON 201, or ECON 202

<sup>\*</sup>Select from ENGL 320, 321, 324 or 459 to satisfy the Upper Level Writing for General Education

<sup>†</sup>Suggested to take ENGR 312 and ENGR 311

Students must earn a "C" or better in ECE 173, ECE 275, EE 206, and all required MATH courses, before enrolling in ECE courses listed above in the Junior or Senior years

<sup>1</sup> Students must have at least a 2.0 GPA in all required EE and ECE courses taken at NDSU, in order to graduate. Elective ECE courses are not included in this GPA requirement

<sup>2</sup> See <http://bulletin.ndsu.edu/course-catalog/descriptions/ece/> and <http://bulletin.ndsu.edu/course-catalog/descriptions/csci/> for the full list of ECE and CSCI courses, respectively

# Computer Engineering Curriculum Flowchart

