

# B.S. in Electrical and Computer Engineering

## Catalog Year 2026-27

Below is the *advised sequence* of courses for this degree program as of Jan 2026.

Official degree requirements and course prerequisites are found in the University General Catalog; prerequisites are subject to change.

| Course Number and Title                                                                                      | Units | Prerequisites/Enrollment Requirements                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1<sup>st</sup> Semester</b>                                                                               |       |                                                                                                                                                       |
| MATH 122A/B or MATH 125 Calculus I with Applications                                                         | 5/3   | Appropriate Math Placement                                                                                                                            |
| *CHEM 151 Chemical Thinking I or CHEM 161/163 or MSE 109 Foundations of Materials Chemistry for Applications | 4     | Appropriate Math Placement                                                                                                                            |
| WRIT 101 or 107 or 109H First-Year Composition                                                               | 3     |                                                                                                                                                       |
| ENGR 102A/102B Introduction to Engineering or ENGR 102                                                       | 3     | <u>ENGR102A &amp; 102B</u> : Pre- or Co-requisite of MATH 112 or higher; First-Year Status; College of Engineering Major; must not have taken ENGR102 |
| UNIV 101 Intro to the General Education Experience                                                           | 1     |                                                                                                                                                       |
| Semester Total                                                                                               |       | <b>14/16</b>                                                                                                                                          |
| <b>2<sup>nd</sup> Semester</b>                                                                               |       |                                                                                                                                                       |
| MATH 129 Calculus II                                                                                         | 3     | MATH 122B or 125 with C or higher                                                                                                                     |
| ECE 101 Programming 1                                                                                        | 4     | Concurrent enrollment or completion of MATH 120R, 122B, 125 or 129                                                                                    |
| *PHYS 141 Introductory Mechanics or PHYS 161H                                                                | 4     | MATH 122B, 125 or Appropriate Math Placement Level                                                                                                    |
| WRIT 102 or 108 First Year Composition                                                                       | 3     | ENGL 101 or ENGL 107                                                                                                                                  |
| General Education: Exploring Perspectives (Artist)                                                           | 3     |                                                                                                                                                       |
| Semester Total                                                                                               |       | <b>17</b>                                                                                                                                             |
| <b>3<sup>rd</sup> Semester</b>                                                                               |       |                                                                                                                                                       |
| ECE 274A Digital Logic                                                                                       | 4     | ECE 101, Concurrent enrollment or completion of MATH 129                                                                                              |
| ECE 201 Programming 2                                                                                        | 3     | Pre – MATH 112; ECE 101 with C or higher                                                                                                              |
| MATH 223 Vector Calculus                                                                                     | 4     | MATH 129 with C or better                                                                                                                             |
| PHYS 241 Introductory Electricity and Magnetism or PHYS 261H                                                 | 4     | <u>PHYS 241 or 261H</u> ; PHYS 141 or 161H; MATH 129 or Appropriate Math Placement Level                                                              |
| General Education: Exploring Perspectives (Humanist)                                                         | 3     |                                                                                                                                                       |
| Semester Total                                                                                               |       | <b>18</b>                                                                                                                                             |
| <b>4<sup>th</sup> Semester</b>                                                                               |       |                                                                                                                                                       |
| ECE 220 Basic Circuits                                                                                       | 5     | MATH 129, PHYS 241                                                                                                                                    |
| PHYS 143 Introductory Optics and Thermodynamics or PHYS 142 or PHYS 162H                                     | 2     | PHYS 141 or 140 or 161H, MATH 129 or Appropriate Math Placement Level                                                                                 |
| MATH 243 Discrete Mathematics                                                                                | 3     | MATH 122B or 125 or 129 (transfer credit ok)                                                                                                          |
| MATH 254 Intro to Ordinary Differential Equations                                                            | 3     | MATH 129 or 223 with C or higher                                                                                                                      |
| General Education: Exploring Perspectives (Social Scientist)                                                 | 3     |                                                                                                                                                       |
| Semester Total                                                                                               |       | <b>16</b>                                                                                                                                             |

\*Each of the following foundational science courses satisfies the requirements for General Education: Exploring Perspectives (Natural Scientist): CHEM 151 or 152 or 161 or 162; or PHYS 141 or 161H.

## ELECTRICAL OPTION

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

| Course Number and Title                              | Units | Comments                                  |
|------------------------------------------------------|-------|-------------------------------------------|
| <b>5<sup>th</sup> Semester</b>                       |       |                                           |
| ECE 310 Applications of Engineering Mathematics      | 4     |                                           |
| ECE 320A Circuit Theory                              | 3     |                                           |
| ECE 372A Microprocessor Organization                 | 4     |                                           |
| Technical Elective                                   | 3     | Consult major advisor for course approval |
| ECE 311 Engineering Ethics and Contemporary Issues   | 1     |                                           |
| †General Education: Building Connections             | 3     |                                           |
| Semester Total                                       |       | <b>18</b>                                 |
| <b>6<sup>th</sup> Semester</b>                       |       |                                           |
| ECE 340A Introduction to Communications              | 3     |                                           |
| ECE 351C Electronic Circuits                         | 4     |                                           |
| ECE 381A Introductory Electromagnetics (Spring Only) | 4     |                                           |
| ECE 352 Device Electronics (Spring Only)             | 3     |                                           |
| †General Education: Building Connections             | 3     |                                           |
| Semester Total                                       |       | <b>17</b>                                 |
| <b>7<sup>th</sup> Semester</b>                       |       |                                           |
| ENGR 498A Interdisciplinary Capstone                 | 3     | Senior Status                             |
| Engineering Electrical Course II                     | 3     | Consult major advisor for course approval |
| Technical Elective                                   | 3     | Consult major advisor for course approval |
| Technical Elective                                   | 3     | Consult major advisor for course approval |
| Technical Elective                                   | 3     | Consult major advisor for course approval |
| Semester Total                                       |       | <b>15</b>                                 |
| <b>8<sup>th</sup> Semester</b>                       |       |                                           |
| ENGR 498B Interdisciplinary Capstone                 | 3     | Senior Status                             |
| Technical Elective                                   | 3     | Consult major advisor for course approval |
| Technical Elective                                   | 3     | Consult major advisor for course approval |
| †General Education: Building Connections             | 3     |                                           |
| UNIV 301 General Education Portfolio                 | 1     |                                           |
| Semester Total                                       |       | <b>13</b>                                 |

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

## COMPUTER OPTION

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

| Course Number and Title                                    | Units     | Comments                                  |
|------------------------------------------------------------|-----------|-------------------------------------------|
| <b>5<sup>th</sup> Semester</b>                             |           |                                           |
| ECE 310 Applications of Engineering Mathematics            | 4         |                                           |
| ECE 369A Fundamentals of Computer Organization (Fall Only) | 4         |                                           |
| ECE 320A Circuit Theory                                    | 3         |                                           |
| ECE 373 Object-Oriented Software Design (Fall Only)        | 3         |                                           |
| ECE 311 Engineering Ethics and Contemporary Issues         | 1         |                                           |
| †General Education: Building Connections                   | 3         |                                           |
| Semester Total                                             | <b>18</b> |                                           |
| <b>6<sup>th</sup> Semester</b>                             |           |                                           |
| Technical Elective                                         | 3         | Consult major advisor for course approval |
| ECE 351C Electronic Circuits                               | 4         |                                           |
| ECE 340A Introduction to Communications                    | 3         |                                           |
| ECE 372A Microprocessor Organization                       | 4         |                                           |
| †General Education: Building Connections                   | 3         |                                           |
| Semester Total                                             | <b>17</b> |                                           |
| <b>7<sup>th</sup> Semester</b>                             |           |                                           |
| ENGR 498A Interdisciplinary Capstone (Fall Only)           | 3         | Senior Status                             |
| Required Computer Course                                   | 3         | Consult major advisor for course approval |
| Technical Elective                                         | 3         | Consult major advisor for course approval |
| Technical Elective                                         | 3         | Consult major advisor for course approval |
| Technical Elective                                         | 3         | Consult major advisor for course approval |
| Semester Total                                             | <b>15</b> |                                           |
| <b>8<sup>th</sup> Semester</b>                             |           |                                           |
| ENGR 498B Interdisciplinary Capstone (Spring Only)         | 3         | Senior Status                             |
| Technical Elective                                         | 3         | Consult major advisor for course approval |
| Technical Elective                                         | 3         | Consult major advisor for course approval |
| †General Education: Building Connections                   | 3         |                                           |
| UNIV 301 General Education Portfolio                       | 1         |                                           |
| Semester Total                                             | <b>13</b> |                                           |

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.