

# BS IN COMPUTER SCIENCE AND ENGINEERING TECHNOLOGY

The computer science and engineering technology program provides hands-on curriculum with an in-depth understanding of computer hardware and software as they relate to computer design and applications. Students get a solid foundation in the principles of electronics, with an emphasis on installation, maintenance and troubleshooting of computer systems. They also learn about the use of software in engineering technology, which requires a knowledge of programming and computer operating systems.

- Computer Science and Engineering Technology, BS
- Computer Science and Engineering Technology, BS - Cyber Security concentration (p. 1)

## Computer Science and Engineering Technology, BS

| Code                              | Title                                                       | Hours |
|-----------------------------------|-------------------------------------------------------------|-------|
| CSET 1100                         | Introduction to Computer Science and Engineering Technology | 4     |
| EET 2420                          | Electrical Instrumentation Laboratory                       | 1     |
| PHIL 1010                         | Introduction To Logic                                       | 3     |
| ENGT 1000                         | Engineering Technology Orientation                          | 1     |
| ENGL 1110                         | College Composition I                                       | 3     |
| CSET 1200                         | Object Oriented Programming and Data Structures             | 3     |
| PHYS 2070                         | General Physics I                                           | 4     |
| PHYS 2075                         | General Physics I - Lab                                     | 1     |
| EET 2210                          | Digital Logic Fundamentals                                  | 4     |
| ENGL 2950                         | Technical Writing                                           | 3     |
| MATH 2450                         | Calculus For Engineering Technology I                       | 4     |
| PHYS 2080                         | General Physics II                                          | 4     |
| PHYS 2085                         | General Physics II - Lab                                    | 1     |
| CSET 2200                         | PC and Industrial Networks                                  | 4     |
| CSET 2230                         | Assembly Language and Computer Architecture                 | 4     |
| ENGT 2000                         | Professional Development                                    | 1     |
| ENGT 3010                         | Applied Statistics And Design Of Experiments                | 4     |
| EET 3350                          | Embedded Systems Design                                     | 4     |
| MATH 2890                         | Numerical Methods And Linear Algebra                        | 3     |
| CSET 3150                         | Introduction to Algorithms                                  | 4     |
| CSET 3300                         | Database-Driven Web Sites                                   | 4     |
| CSET 3600                         | Software Engineering and Human Interfacing                  | 4     |
| CSET 4350                         | Operating Systems                                           | 3     |
| CSET 4750                         | Computer Networks And Data Communication                    | 4     |
| CSET 4250                         | Applied Programming Languages                               | 3     |
| ENGT 4050                         | Senior Technology Capstone                                  | 3     |
| CSET 4850                         | Computer and Network Security                               | 4     |
| Professional Development Elective |                                                             |       |
| CSET Technical Elective           |                                                             |       |

### Communication Elective

### University Core

## Computer Science and Engineering Technology, BS - Cyber Security concentration

| Code      | Title                                                       | Hours |
|-----------|-------------------------------------------------------------|-------|
| CSET 1100 | Introduction to Computer Science and Engineering Technology | 4     |
| EET 2420  | Electrical Instrumentation Laboratory                       | 1     |
| PHIL 1010 | Introduction To Logic                                       | 3     |
| ENGT 1000 | Engineering Technology Orientation                          | 1     |
| ENGL 1110 | College Composition I                                       | 3     |
| CSET 1200 | Object Oriented Programming and Data Structures             | 3     |
| PHYS 2070 | General Physics I                                           | 4     |
| PHYS 2075 | General Physics I - Lab                                     | 1     |
| EET 2210  | Digital Logic Fundamentals                                  | 4     |
| ENGL 2950 | Technical Writing                                           | 3     |
| PHYS 2080 | General Physics II                                          | 4     |
| PHYS 2085 | General Physics II - Lab                                    | 1     |
| MATH 2450 | Calculus For Engineering Technology I                       | 4     |
| CSET 2200 | PC and Industrial Networks                                  | 4     |
| CSET 2230 | Assembly Language and Computer Architecture                 | 4     |
| ENGT 3050 | Fundamentals Of Electricity                                 | 4     |
| MATH 2640 | Statistics for Applied Science                              | 3     |
| CSET 2520 | Discrete Structures                                         | 3     |
| EET 2410  | Mechatronics I                                              | 4     |
| ENGT 2000 | Professional Development                                    | 1     |
| ENGT 3010 | Applied Statistics And Design Of Experiments                | 4     |
| EET 3350  | Embedded Systems Design                                     | 4     |
| MATH 2890 | Numerical Methods And Linear Algebra                        | 3     |
| CSET 3150 | Introduction to Algorithms                                  | 4     |
| CSET 3300 | Database-Driven Web Sites                                   | 4     |
| CSET 3600 | Software Engineering and Human Interfacing                  | 4     |
| CSET 4350 | Operating Systems                                           | 3     |
| CSET 4750 | Computer Networks And Data Communication                    | 4     |
| CSET 4250 | Applied Programming Languages                               | 3     |
| ENGT 4050 | Senior Technology Capstone                                  | 3     |

### Communication Elective

### Professional Development Elective

### Technical Elective

Students in the BS Computer Science and Engineering Technology – Cyber Security Concentration must take cyber security related projects in the following classes: CSET 3300, CSET 4850, and ENGT 4050. Please, consult the CSET Program Director for additional information.

- Computer Science and Engineering Technology, BS
- Computer Science and Engineering Technology, BS - Cyber Security concentration

**Computer Science and Engineering Technology, BS**

| <b>First Term</b>                 |                                                             | <b>Hours</b> |
|-----------------------------------|-------------------------------------------------------------|--------------|
| CSET 1100                         | Introduction to Computer Science and Engineering Technology | 4            |
| EET 2420                          | Electrical Instrumentation Laboratory                       | 1            |
| PHIL 1010                         | Introduction To Logic                                       | 3            |
| ENGT 1000                         | Engineering Technology Orientation                          | 1            |
| ENGL 1110                         | College Composition I                                       | 3            |
| Social Sciences Core              |                                                             | 3            |
| <b>Hours</b>                      |                                                             | <b>15</b>    |
| <b>Second Term</b>                |                                                             |              |
| CSET 1200                         | Object Oriented Programming and Data Structures             | 3            |
| Communications Elective           |                                                             | 3            |
| PHYS 2070                         | General Physics I                                           | 4            |
| PHYS 2075                         | General Physics I - Lab                                     | 1            |
| EET 2210                          | Digital Logic Fundamentals                                  | 4            |
| ENGL 2950                         | Technical Writing                                           | 3            |
| <b>Hours</b>                      |                                                             | <b>18</b>    |
| <b>Third Term</b>                 |                                                             |              |
| MATH 2450                         | Calculus For Engineering Technology I                       | 4            |
| PHYS 2080                         | General Physics II                                          | 4            |
| PHYS 2085                         | General Physics II - Lab                                    | 1            |
| CSET 2200                         | PC and Industrial Networks                                  | 4            |
| CSET 2230                         | Assembly Language and Computer Architecture                 | 4            |
| <b>Hours</b>                      |                                                             | <b>17</b>    |
| <b>Fourth Term</b>                |                                                             |              |
| ENGT 3050                         | Fundamentals Of Electricity                                 | 4            |
| MATH 2460                         | Calculus For Engineering Technology II                      | 4            |
| EET 2410                          | Mechatronics I                                              | 4            |
| CSET 2520                         | Discrete Structures                                         | 3            |
| Social Sciences Core              |                                                             | 3            |
| <b>Hours</b>                      |                                                             | <b>18</b>    |
| <b>Fifth Term</b>                 |                                                             |              |
| ENGT 2000                         | Professional Development                                    | 1            |
| ENGT 3010                         | Applied Statistics And Design Of Experiments                | 4            |
| EET 3350                          | Embedded Systems Design                                     | 4            |
| MATH 2890                         | Numerical Methods And Linear Algebra                        | 3            |
| CSET Technical Elective           |                                                             | 3            |
| <b>Hours</b>                      |                                                             | <b>15</b>    |
| <b>Sixth Term</b>                 |                                                             |              |
| Natural Sciences Core             |                                                             | 4            |
| CSET 3150                         | Introduction to Algorithms                                  | 4            |
| CSET 3300                         | Database-Driven Web Sites                                   | 4            |
| <b>Hours</b>                      |                                                             | <b>12</b>    |
| <b>Seventh Term</b>               |                                                             |              |
| Professional Development Elective |                                                             | 3            |

| CSET 3600                             | Software Engineering and Human Interfacing | 4          |
|---------------------------------------|--------------------------------------------|------------|
| CSET 4350                             | Operating Systems                          | 3          |
| CSET 4750                             | Computer Networks And Data Communication   | 4          |
| Diversity of US                       |                                            | 3          |
| <b>Hours</b>                          |                                            | <b>17</b>  |
| <b>Eighth Term</b>                    |                                            |            |
| Professional Development Elective     |                                            | 3          |
| Arts/Humanities Core/Non-US Diversity |                                            | 3          |
| CSET 4250                             | Applied Programming Languages              | 3          |
| ENGT 4050                             | Senior Technology Capstone                 | 3          |
| CSET 4850                             | Computer and Network Security              | 4          |
| <b>Hours</b>                          |                                            | <b>16</b>  |
| <b>Total Hours</b>                    |                                            | <b>128</b> |

**Computer Science and Engineering Technology, BS - Cyber Security concentration**

Students in the BS Computer Science and Engineering Technology – Cyber Security Concentration must take cyber security related projects in the following classes: CSET 3300, CSET 4850, and ENGT 4050. Please, consult the CSET Program Director for additional information.

Other than that, the plan of study is the same as that for EN-CSET-BCT: Computer Science and Engineering Technology, BS

| <b>First Term</b>       |                                                             | <b>Hours</b> |
|-------------------------|-------------------------------------------------------------|--------------|
| CSET 1100               | Introduction to Computer Science and Engineering Technology | 4            |
| EET 2420                | Electrical Instrumentation Laboratory                       | 1            |
| PHIL 1010               | Introduction To Logic                                       | 3            |
| ENGT 1000               | Engineering Technology Orientation                          | 1            |
| ENGL 1110               | College Composition I                                       | 3            |
| Social Sciences Core    |                                                             | 3            |
| <b>Hours</b>            |                                                             | <b>15</b>    |
| <b>Second Term</b>      |                                                             |              |
| CSET 1200               | Object Oriented Programming and Data Structures             | 3            |
| PHYS 2070               | General Physics I                                           | 4            |
| PHYS 2075               | General Physics I - Lab                                     | 1            |
| Communications Elective |                                                             | 3            |
| EET 2210                | Digital Logic Fundamentals                                  | 4            |
| ENGL 2950               | Technical Writing                                           | 3            |
| <b>Hours</b>            |                                                             | <b>18</b>    |
| <b>Third Term</b>       |                                                             |              |
| PHYS 2080               | General Physics II                                          | 4            |
| PHYS 2085               | General Physics II - Lab                                    | 1            |
| MATH 2450               | Calculus For Engineering Technology I                       | 4            |
| CSET 2200               | PC and Industrial Networks                                  | 4            |
| CSET 2230               | Assembly Language and Computer Architecture                 | 4            |
| <b>Hours</b>            |                                                             | <b>17</b>    |

**Fourth Term**

|                      |                                        |   |
|----------------------|----------------------------------------|---|
| ENGT 3050            | Fundamentals Of Electricity            | 4 |
| MATH 2460            | Calculus For Engineering Technology II | 4 |
| CSET 2520            | Discrete Structures                    | 3 |
| EET 2410             | Mechatronics I                         | 4 |
| Social Sciences Core |                                        | 3 |

**Hours** **18**

**Fifth Term**

|                         |                                              |   |
|-------------------------|----------------------------------------------|---|
| ENGT 2000               | Professional Development                     | 1 |
| ENGT 3010               | Applied Statistics And Design Of Experiments | 4 |
| EET 3350                | Embedded Systems Design                      | 4 |
| MATH 2890               | Numerical Methods And Linear Algebra         | 3 |
| CSET Technical Elective |                                              | 3 |

**Hours** **15**

**Sixth Term**

|                       |                            |   |
|-----------------------|----------------------------|---|
| Natural Sciences Core |                            | 4 |
| CSET 3150             | Introduction to Algorithms | 4 |
| CSET 3300             | Database-Driven Web Sites  | 4 |

**Hours** **12**

**Seventh Term**

|                                   |                                            |   |
|-----------------------------------|--------------------------------------------|---|
| Professional Development Elective |                                            | 3 |
| CSET 3600                         | Software Engineering and Human Interfacing | 4 |
| CSET 4350                         | Operating Systems                          | 3 |
| CSET 4750                         | Computer Networks And Data Communication   | 4 |
| Diversity of US                   |                                            | 3 |

**Hours** **17**

**Eighth Term**

|                                       |                               |   |
|---------------------------------------|-------------------------------|---|
| Professional Development Elective     |                               | 3 |
| Arts/Humanities Core/Non-US Diversity |                               | 3 |
| CSET 4850                             | Computer and Network Security | 4 |
| CSET 4250                             | Applied Programming Languages | 3 |
| ENGT 4050                             | Senior Technology Capstone    | 3 |

**Hours** **16**

**Total Hours** **128**

- The program has the following student learning outcomes: PLO 1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline.
- PLO 2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline
- PLO 3. an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- PLO 4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and

- PLO 5. an ability to function effectively as a member as well as a leader on technical teams. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PLO 6. an ability to apply computer science theory and software development fundamentals to produce computing-based solutions (CAC CS Program Criteria).

The program educational objectives of the Computer Science and Engineering Technology program will result in graduates that will:

1. Assume leadership roles in business and industry and make technical contributions to design, development, and manufacturing in their practice of computer science and engineering technology, computer networks and computer information systems.
2. Have a sufficient depth of understanding in computer science and the skills, confidence, professionalism, and experience necessary for successful careers in computer science and related fields.
3. Demonstrate professionalism and a sense of societal and ethical responsibility in all their endeavors.
4. Engage in professional development or post-graduate education to pursue flexible career paths adapting to future technological changes.